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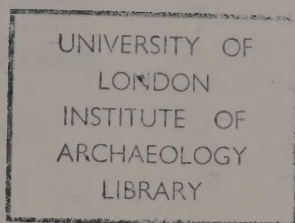
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IONE GEDYE (1907 - 1990)



Ione Gedye in 1977

Ione Gedye died in November 1990 at the age of 83. She was a former student of this College, the pioneering head of the Conservation Department at this Institute, and the founding Secretary of the UK Conservators' professional body - the UK Group of the International Institute for Conservation of Historic and Artistic Works (now the UK Institute for Conservation).

The following is the text of the address given by Professor Henry Hodges (Secretary General of the International Institute for Conservation) at the memorial service held to honour Ione Gedye on 19 April 1991.

Ione Gedye: An Appreciation of Her Life

I hope you will forgive me if I appear to dwell unduly upon Ione Gedye's professional career, especially the early years thereof. I do so because I believe an understanding of this formative period of her life will best tell us about the nature of the person we have come to know and to whom we pay tribute. I am aware that fatalists, by which I mean those who hold with the concept of Kismet, the idea that our lives are preordained, could point to Ione's far from common family name and even less workaday given name, and aver that her life was bound to be unusual. This attitude would be to belittle Ione's particular talents and would do no justice to her life's work.

We should begin, then, at a time in the thirties, when Ione was an undergraduate student at University College studying Classical Archaeology under the aegis of Professor Ashmole, where she obtained, as she expressed it herself, an unremarkable first degree. Amongst the subjects she then studied was the art of Classical Greece, more especially red-figure wares; and these studies were further supplemented in the form of practical work on the vases themselves. Here, amongst her duties was the removal of patches of black pigment applied to the figure in order to render them, as the perpetrators of these mutilations felt, more acceptable to the viewing public. This, apart from sticking together a few vessels that had become damaged, was Ione's first introduction to conservation.

At this time, in the immediate pre-war years, Mortimer Wheeler was embarking upon his excavations of the Iron Age and Neolithic sites at Maiden Castle in Dorset, and having heard that Ione knew something about dealing with archaeological pottery, he engaged her to look after the small finds from those excavations. Remembering that these sites produced not only friable prehistoric pottery, but also rusting iron and corroding bronze artefacts, about which she knew nothing, one can understand only a part of the predicament in which she found herself. But Ione was a determined person and hence decided to discover what she needed to learn; and therein lay the rub. She was aware that academics at that time knew nothing and appeared to care even less about the fate of their small finds, having sequestered their treatment to a group of people somewhat disdainfully referred to as technicians. The latter more often than not had received a dubious training, and those who had undergone some semblance of instruction had normally done so as apprentices, a much put upon element of society. Indeed one such technician had told Ione bluntly that since his parents had been obliged to pay for his apprenticeship he had no intention of passing on his knowledge without reimbursement. Needless to say Ione was incensed by this attitude, which served only to harden her resolve to do something constructive to rectify the state of affairs.

To be outraged is one thing; to do something about it is very different, and it was not until after the war, when Ione was appointed head of the technical department of the Institute of Archaeology, then housed at St John's Lodge in Regent's Park, that Ione could begin to realise her ambitions. The technical department, it should be said, was created as a service organ in the first instance to be at the call of archaeologists in the Institute's staff. Fortunately the new

director of the Institute, Gordon Childe, saw things somewhat differently, being of the persuasion - or maybe having been persuaded - that it would be of benefit to everyone if archaeologists under tuition should be given some basic instruction in the practicalities of conservation. The technical department was soon to become as much a place of education as a service to archaeologists.

I have just said that Ione initially found it difficult to obtain information on the subject of conservation. Indeed the total literature on the subject at that time amounted to rather thin booklets and a handful of papers and notes scattered amongst the archaeological periodicals, and you may well ask how, if she were to teach in this area, she found the essential material for that purpose. Happily there were one or two people in London more forthcoming than the rest: Arthur Trotman at the London Museum was one, and Harold Plenderleith and his staff in the British Museum Research Laboratory were others. Indeed, Ione often used to refer to Dr Plenderleith as godfather to the department as an acknowledgement of his help during these difficult days. Nevertheless the onus of further improvement fell totally on Ione's shoulders, and although by 1950 she was able to provide a one-year training course for museum technicians she believed this to be quite inadequate considering the needs of museums, archaeologists and the technicians themselves. As far as Ione was concerned, the lowly status of the latter, and the poor esteem in which they were held, continued to rankle and served only to harden her determination to do something further about it.

Shortly after its founding in 1950 Ione was able to attend the first congress of the International Institute for Conservation, a venture on her part, I should add, funded entirely out of her own pocket. Here, to her astonishment, she was to meet for the first time Stephen Rees-Jones, then head of the Courtauld Institute's Restoration Department. Until that time they were totally unaware of one another's existence, despite the fact that two of the professors on the staff of the Institute of Archaeology were on the Board of Management of the Courtauld Institute. 'Poor dears', Ione would say later on, meaning the two professors, 'how should they know what goes on in the servants' quarters', thus demonstrating at one blow her tendency to be magnanimous, her sense of humour, and her capability of summing up accurately the nature of human relationships.

With the publication of Harold Plenderleith's monograph in Conservation in 1956 and the now regular publication of Studies in Conservation there was at last a small but presentable body of literature to allow teaching to higher standards than hitherto. Thus, when the Institute moved from Regent's Park to Gordon Square at the end of the 1950's, a move which included the creation of new laboratories, the opportunity was there to move from a one-year certificate to a two-year diploma, and to shed the name Technical Department in favour of that of Conservation. If Harold Plenderleith is to be seen as godfather to the Conservation Department, Ione Gedye must most certainly be credited as godmother to the United Kingdom Group of IIC. As the group's first Secretary she quickly realized the importance of being able to bring together conservators from all walks not only to become aware of their mutual problems, but as often as not to be aware of one another's existence, and ultimately to cohere to become a voice in the land.

If by mischance I have given even the slightest hint that Ione was a go-getter or a ruthless empire-builder I have failed lamentably in the eulogy. Certainly Ione was a determined person, but her efforts were directed whole-heartedly toward improving the status of conservators, and woe betide those who decided that things should be otherwise. In fact two great gifts prevented her ever becoming overbearing - her sense of humour and her kindness. Of the former I shall give only one example. An eminent archaeologist once suggested to her that a litre of water could not possibly occupy the same volume as a litre of wheat. 'I feel sorry for him', she said, 'imagine going through life not understanding why Archimedes shouted 'Eureka' as he ran naked through the streets, and worse still being afraid to ask for an explanation in the fear that he might not understand the answer'.

Despite her dogged determination and her sometimes apparent tough outward posture, Ione was throughout her career essentially a kind person. Admittedly there were occasions when she had to reprimand a student whose behaviour was careless or indolent or in some other way failed to live up to his or her full potential. Such people, she argued, and I think correctly, were liable to bring ill-repute upon others in the profession; and they could expect from Ione no quarter, and indeed none would be given. But for students who were industrious and were clearly endeavouring desperately hard to achieve their various goals, and yet failed to pass muster, it was a different matter. This is not to say that Ione was unduly soft-hearted: she was not, and such students still had to be dealt with, while the process was probably more distressing to Ione than to the student. On more than one occasion Ione would say after such a correction 'I felt awful: it was like beating a puppy', and that is something Ione would never dream of doing.

Until the mid-seventies, when the politics of greed got in the way, there were many foreign students enrolled in the Conservation Department; all of them found living in London somewhat difficult, but especially those coming from very different and frequently poor environments. To them Ione was not only a tutor but also a good Samaritan in hundreds of different ways. I very often think of Ione when I read of school teachers who refuse to have anything to do with extra-curricular activities on the grounds that they do not hold with working overtime. Had one even hinted to Ione that looking after the well-being of the students beyond rigid University hours was work she would have considered one to be potty. To Ione such activities were a pleasure, and one that she was not prepared to deny herself. The concept that it might be classified as work would have been totally alien to her character.

One group of people have particular cause to be grateful to Ione: these are the members of the Institute staff and their sponsors who were fortunate enough to have small children about them at the time. From the days of Ian Cornwall, Edward Pyddoke, and Frederick Zeuner onwards, Ione Gedye appointed herself as auxiliary aunt or godmother to any such offerings. To them her kindness was unbounded although it should be added sheer spoiling was not on the agenda. Ione had an uncanny ability to entertain the very young but they in turn were not allowed to indulge in such misdemeanours as tantrums, and interestingly they seldom tried it on more than once. If Ione had a weakness in this respect it was that she could never resist buying

outrageous stuffed toys, and their purchase often gave as much pleasure, one suspects, to Ione as to the recipients. My own two children each has his or her stuffed animal although both now in their twenties, nor will they part with them despite - or even because - of the sheer beauty of their outlandishness.

Those who knew Ione only in a professional capacity might have been surprised to learn that she had another demanding activity quite apart from running a busy university department. Ione shared a flat with her widowed mother to whom she was a devoted daughter, acting not only as companion and housekeeper, but also in the old lady's later years as nurse. There came a day when her mother's eyesight became so impaired that she could no longer read, and for someone who had been an avid reader all her life, this came as a severe blow. Ione therefore cast about to find an activity for her mother during the long periods in which Ione was perforce absent, and having discovered that basket weaving was just such a pastime, Ione set to to teach herself this skill in order that she might herself in turn instruct her mother. Have we not seen this before in Ione's career - learning in order to be able to teach?

Indeed Ione would have been capable of following many different careers. She could, for example, have spent her life writing elegant papers on the subject of decorated ancient Greek pottery, and with her abiding interest in mythology I am certain she could have brought some fascinating sidelights to the topic. This would have been an easy path for her to follow. We must be thankful that she chose otherwise; that early on she saw a challenge, that she accepted it, and that through sheer tenacity she created a structure where none had existed before. That this demanded courage is sure: but courage alone is not enough, and what made her life's work doubly important is that she brought to it a love for other people's well-being.



Ione Gedye at the beginning of her conservation career, working on Roman ceramics
probably from Verulamium

Ione Gedye and the Development of Conservation Training

by ELIZABETH PYE†

Ione Gedye became interested in conservation, though it was not known as conservation then, while she was studying Classical Archaeology at University College London. She volunteered to help in the Egyptology Department and there she became involved in washing grave clothes under the guidance of Margaret Murray, and preparing pots for Flinders Petrie's summer exhibitions.

In the early 1930's she worked at Mortimer Wheeler's excavation at Verulamium (St Albans), where Tessa Wheeler encouraged her interest in the care of artifacts and showed her how to reconstruct pottery. Once she had dealt with the Verulamium pottery she moved on to cleaning the metalwork (with the aid of one of the first books on conservation, by Harold Plenderleith). This work took place at the London Museum and it was here that Ione gave her first lecture. Part-way through it, she was horrified to see Mortimer Wheeler peering round the door; she later described him as 'listening with a satanic leer on his face' and claimed that after this she could face any audience, however disruptive (Gedye, 1987, 16).

Wheeler wished to establish a training which covered the practical aspects of archaeology and when the Institute of Archaeology was formally opened in 1937, he asked Ione to join the staff both to continue her work on objects and to provide some training in conservation for the archaeology students. The Institute was housed in an elegant building in Regent's Park, known as St John's Lodge, and Ione was based in the old operating theatre which had been added to the Lodge when it was used as a hospital during the First World War. The roof leaked and the equipment was primitive - mostly pots and pans from Woolworths - but all the students were required to undertake some practical conservation training in the 'Repair Department'.

At this time conservation was still in its infancy with practically no published information, and few colleagues to consult. Fortunately, however, Hawkes introduced Ione to Harold Plenderleith, who was then working at the British Museum. It was through scientists such as Plenderleith that conservation developed from a craft to a scientific discipline and Ione was always warm in her appreciation of the help and advice he gave her. Through him she learned about the scientific principles behind the treatments then in use, and from then onwards she wisely insisted on the importance of the knowledge of chemistry in the practice of conservation.

By the late 1940's, it was clear that conservation had developed into a discipline in its own right. It had changed considerably through an increased understanding of how objects deteriorate and through the introduction of synthetic polymers. Ione saw the need for a specialist training course for conservators and was eventually able to establish a one-year course. One of the essential ingredients of the training was chemistry which was first taught by Ian Cornwall but was later developed by Henry Hodges who, in 1957, joined Ione in what was then known as the

†Institute of Archaeology, University College London

Technical Department. Hodges was, of course, also responsible for the development of the teaching of early technology which was to become an important feature of the Institute's archaeological training.

At this time the Technical department was still very simply equipped (the major source of equipment was Gamages Bargain Basement); in addition to conservation the department was responsible for holding dioramas, making models of animals and boiling up animal bones for the environmental study collection. Bone-boiling, not surprisingly, gave rise to appalling smells, and while a particularly noisesome timber-wolf was being boiled, Gordon Childe (then Director) became so enraged that Ione was able to get him to agree instantly to the purchase of a fume cupboard - an unbelievably sophisticated addition to the equipment.

In 1958 the Institute moved into its present purpose-designed building in Gordon Square (Ione had insisted that the conservation laboratories should be housed on the top floor, not in the basement as the architect originally intended). For the first time there were well-designed laboratories and adequate space for the Department's activities.

The conservation course now lasted two years and led to the award of a diploma. Ione persuaded many distinguished conservators to contribute to the training: Harold Plenderleith and Robert Organ (of the British Museum) gave plentiful advice; Tony Warner (also of the BM), and later Norman Brommelle (of the Victoria and Albert Museum), acted as external examiners; Stephen Rees-Jones (of the Courtauld Institute) and David Baynes-Cope (of the BM) taught the students about the conservation of paintings and of paper.

A further development came in 1964 when the Institute was invited to provide training for the new Museums Association Certificate in Conservation. This introduced many experienced conservators, already employed in museums, to the classes in the Institute and Ione greatly enjoyed their contribution to discussion. The partnership with the Museums Association lasted for many years and set the precedent for provision of in-service training so much appreciated by many conservators who had not otherwise had the benefit of academic training.

Ione expected her students to be totally committed to conservation and, once they were trained, she was unswervingly confident that they could meet any challenge. She had however, a deep-seated suspicion of archaeologists as a class (possibly as a result of working with Wheeler) and she was always concerned if a student showed what she felt to be too marked an interest in archaeology. Her teaching was based on an exhaustive survey of the available literature and of the practice of conservator colleagues (she never used slides or other visual material because the course was firmly rooted in practical conservation). Her collection of index cards, which is still preserved in the department, was a prominent feature on her desk in the laboratory and was consulted by both staff and students, but she had a marked dislike for administrative paper-work and an enviable ability to throw away any papers she saw as unnecessary.

Ione's great achievement was to have set up a conservation training which became internationally known and respected. Fortunately, she had been undeterred when she was told that none of the first group of students she had trained would get jobs (they all did), and soon students were coming from all over the world. Through these students she was responsible for

establishing and developing archaeological conservation in museums and antiquities services in many different countries. By the time she retired in 1975, the training had received university recognition and become a three-year undergraduate course.

A mile-stone in the development of the conservation profession was the establishment, in 1950, of the International Institute for Conservation (IIC). The UK Group of IIC (UKG) was founded in 1958 and fostered by Ione during the first 18 years of its existence. As its first secretary she was responsible for persuading conservators and other specialists, including those visiting from abroad, to come and speak at the regular meetings held at the Institute of Archaeology. One of Ione's main aims was that conservators should learn about each other's specialist areas, thus students and experienced professionals alike were exposed to a considerable range of subjects.

For UKG, a notable annual event was the Christmas party held at the Institute of Archaeology with the students dragooned by Ione into decorating the common-room and providing the food - national dishes cooked by many overseas students were much in demand. Many of Ione's former students will remember the preparations for the party: trying to produce an even more spectacular decorative scheme than last year, and poring anxiously over hot stoves while producing large quantities of tempting food (Ione was always emphatic that all conservators had large appetites). Here again, Ione provided an opportunity for students and professionals to meet.

After retiring in 1975, she gradually became less directly involved in conservation although she continued to keep in touch through her many friends, colleagues and former students throughout the world. She was very modest about her achievements but these were deservedly honoured - at the time of the Queen's Silver Jubilee in 1977, she was awarded a Jubilee Medal for her services to conservation; also in 1977, the first volume of *The Conservator* (the journal of the UK Institute for Conservation) was prefaced with a tribute to her in recognition of the work she had done for UKG and UKIC (Pye and Brommelle, 1977); and in 1985 UKIC made her an Honorary Life Member.

When the Institute of Archaeology celebrated its Golden Jubilee in 1987 the Jubilee Conservation Conference was held to mark the event. The volume of papers given at the conference entitled *Recent Advances in the Conservation and Analysis of Artifacts* (Black, 1987), was dedicated to Ione and to Harold Plenderleith. Both were present at the beginning of the conference to receive copies of the volume signed by all the participants, very many of them former students of the Institute.

Everyone who knew Ione will have his or her own affectionate memories of her: her great kindness, her ardent and often partisan support of conservation and of her students, her reservations about archaeologists, her wry and possibly slanderous stories about the early days at the Institute, her dislike of paperwork, her calm good-sense when faced with a contentious issue, her love of opera and oratorio, her loyalty to her friends, her instinctive understanding of children (and her extraordinary generosity to them).

Conservation, and conservators, owe Ione a very great debt of gratitude. Perhaps this is best summed up by the citation which was presented to her when she was made an Honorary Life Member of the United Kingdom Institute of Conservation in March 1985:

'Ione Gedye was a pioneer in teaching conservation in the United Kingdom. By her efforts, hundreds of students have gone to all parts of the world with increased skills and increased concern for the quality and care of the heritage. The standard and standing of conservation in the United Kingdom in particular has been raised through the work of her students.

'Most vital of all is the enthusiasm for conservation and love of objects which she continues to impart to new generations of conservators. This is the contribution of Ione Gedye we most wish to honour.'

The Development of Conservation Training

Conservation Today

During the 83 years of Ione Gedye's life the preservation of artifacts developed from the craft of repair and restoration to the science of conservation. The long tradition of skilled practice (seen, for example, in the restoration of paintings and sculpture, and the repair of books and documents) was changed by a 'scientific revolution' caused firstly, in the early years of this century, by a greater understanding of the ways in which materials deteriorate and the realisation that chemical treatments could be used to halt or prevent further deterioration, and secondly, in the 1950's, by the introduction of synthetic polymers which provided a potentially enormous range of new adhesives and consolidants (Seeley, 1987).

In working on artifacts, conservators must observe and reveal evidence as well as preserve it (particularly in fields in which objects are crucial sources of information, eg archaeology and archives). Thorough examination of an object is very important, but this task has become more complex because the techniques which can be used for recognition and identification of evidence have proliferated during the last 20 to 30 years.

Deciding on the appropriate conservation treatment is no longer as simple as it used to be. There is an ever increasing range of possible treatments and conservators must make their choices after weighing up a number of factors: the nature and condition of the object, what the object is needed for (study, display, loan, or even legal evidence); the circumstances (an emergency may require what would ordinarily be considered drastic treatment); constraints (eg of finance, equipment, time, or of the present state of conservation knowledge). They must consider each possible treatment including active laboratory treatments and passive treatments (improving and controlling the environment of the object), they must consider chemical and/or repair treatments and the materials which might be used in each case.

As the subject has changed and developed, so have the ethics. There is a growing realisation amongst conservators that they can no longer rely on reversibility as their main guiding principle. Almost everything they do causes changes to objects, for example when attempting

to remove a reversible synthetic adhesive used in repair it is now known that some will be left behind, and it is certainly unrealistic to expect to put back harmful materials (such as acids or salts) which have been removed to protect an object from further damage. This has led to the development of an additional principle - that of minimum intervention (doing as little as possible while ensuring reasonable preservation) - which has changed conservation practice considerably (Pye and Cronyn, 1987; Baynes-Cope, 1988).

Nigel Seeley, who succeeded Ione Gedye as head of the Conservation Department, has summed up the range of intellectual and practical skills required by a conservator: 'The conservator has, therefore, to have a foot in many camps. He needs to understand something of the civilisations of the past, the history of technology and the sources and nature of the raw materials used for the manufacture of artefacts. He has also, however, to be able to use scientific techniques to identify the artefacts he handles, understand their deterioration, and propose and carry out procedures for their treatment, often requiring the use of delicate manual skills. In addition, he is often expected to come up with an answer to a situation which he has not previously met ... There is also the rather intangible faculty namely the 'feel' for antiquities, without which conservation becomes little more than a mechanical process.' (Seeley, 1987, 170).

Conservation Training at the Institute

A clear picture of the aims and content of the two year training course established at the Institute of Archaeology in 1958 is given in two papers by Henry Hodges and Ione Gedye (Hodges 1961, Gedye and Hodges 1964). The course was born out of the need both to provide something more rigorous than the traditional apprenticeship training in museums, and to introduce a grounding in the scientific principles on which conservation processes were based. The foundations of our present training are clearly visible: the study of materials, of processes of deterioration, of chemistry and physics applied to conservation, of conservation processes both preventative and curative, an introduction to archaeology, and training in photography and drawing. As now, there was an emphasis on practical training through the laboratory treatment of antiquities, and the preparation of scientific records. Already the possibilities of extending the course to three years and of developing a degree course were being considered.

Today we have a three-year BSc course which has built on those foundations. As the subject has grown and developed, some aspects of the early course have had to be discarded to make room for new. We can no longer provide training in making pottery and working with metals, nor as much experience in the production of replicas. The academic content of the training has increased, and with the ever-widening possibilities provided by modern analytical techniques there is greater emphasis on the science of materials. The course started with a concentration on archaeological conservation (but always looked beyond this to give students an understanding of the techniques required for treating more recent material); today we have extended the coverage to ethnographic as well as archaeological material.

Conservation as an Education

In March 1975 J D Evans, on becoming Director of this Institute, gave his inaugural lecture on the subject of 'Archaeology as Education and Profession'. Much of what he said then about education in the training of archaeologists applied equally to the training of conservators. He discussed an earlier tendency to emphasise the archaeologist's 'technical expertise ... to the exclusion of his role in evaluating the evidence' but demonstrated that this view was already losing ground in the mid-1970's (Evans, 1975, 3). As a parallel, the role the conservator plays in revealing and evaluating evidence is now becoming increasingly recognised. Both archaeologist and conservator build up a picture of what man has done through a study of the materials he has discarded. While the archaeologist looks at the site as a whole and draws inferences from the range of material and the way it is disposed, the conservator elucidates the evidence contained within individual objects.

Clearly, a conservator simply 'cleaning' an object taking no account of the evidence which is revealed (and inevitably sometimes removed) in the process, can be equated to an archaeologist simply clearing the walls on a site and removing the artifacts, rather than examining and recording the stratigraphy. The archaeologist needs a thorough preliminary education to equip him or her to be of far more value than a mere treasure hunter, so does the conservator to raise him or her above the level of a cleaner/repairer.

The education we provide must equip students with the ability to make an informed choice after consideration of a range of options. They must have a knowledge of the difficulties or risks attached to certain actions and they must learn to think for themselves, discounting the influence of fashion. To learn all this they should be given the freedom to make their own decisions and to apply ethical standards to their work.

Practical Training

Academic courses in conservation are criticised for not giving enough prominence to practical training (Foley, 1989). In fact we offer almost the same amount of practical training (in terms of hours per week) as was offered in the 1960's (Hodges, 1961). The difference is that there are now so many techniques and materials to learn about that this time is no longer sufficient; simply to provide the students with the opportunity to treat a range of objects means that there are many processes which they do not experience.

The practical training must be more highly structured in order to make the best of the time available and to expose the students to as many techniques and materials as possible. As a complement to this structural training we should provide more extensive work-experience in order to introduce students to the job and prevent them from developing unrealistic expectations. This work-experience should be provided both during the vacation and through internships after the completion of the formal training. It is now widely agreed that no training can be considered complete without one or two years of supervised work experience, and that a clear distinction must be made between a freshly trained conservator and a trained *and* experienced conservator (Cronyn and Pye, 1988).

Future Changes

Several issues currently affecting the conservation profession as a whole, will stimulate further changes to our courses.

There is a growing public interest in the heritage, and greater understanding of the need for conservation of all kinds. The Conservation Unit of the Museums and Galleries Commission has been formed to promote conservation as widely as possible, and even the smallest museums are becoming more aware of their duty to conserve as well as to display.

There is an increasing emphasis, in museums, on collections management rather than the traditional curation of objects. Conservators are, therefore, becoming actively involved in policy decisions on condition assessment, loans, display and storage. Museum work of all kinds is being managed and quantified and this will require conservators to plan and control their output far more rigorously than in the past.

The content of all types of conservation training in the UK is being evaluated by the UK Institute for Conservation, and the UKIC's Education and Training Committee has defined a core of information (known as the Basic Syllabus) that should be covered by any training course. It has also drawn up sample specialist syllabuses to demonstrate the range and level of education required for each field of conservation. (Cronyn and Pye, 1988). The Committee will next consider the provision of practical training.

There is a growing emphasis on setting and monitoring standards of practice in all professions (hence the creation of the National Council for Vocational Qualifications). In conservation this emphasis is seen in the UK Institute for Conservation's move towards accreditation of its members, and in the current work on definition of professional standards by the new Museum Training Institute. The UKIC and the MTI are also concerned that training should be provided in specialist areas where none exists at present; separate courses or modules covering a number of specialist areas including ethnography, are now required (Foley, 1989).

At the start of the 1990's we are clearly facing a period of development and change. At this Institute we are planning to establish a new Centre for Conservation and Museum Sciences which will provide improved facilities for our courses. We intend to foster a wide-ranging programme of research into conservation which will be of direct value to the profession, and will improve the quality of the education we can provide. To this end we have appointed the first reader in Conservation in a UK University, Clifford Price (formerly Head of the Ancient Monuments Laboratory, English Heritage) who reports elsewhere in this volume on future developments in conservation research.

Although now is an appropriate time to look forward to further developments, we should also remember that it is largely due to the energy and dedication of Ione Gedye that training in archaeological conservation came into being.

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Research in Archaeological Conservation

by CLIFFORD A. PRICE †

Introduction

It is an opportune moment to review the prospects for research in archaeological conservation and to examine the role that the Institute of Archaeology should be playing. 1990 saw, in Ione Gedye's death, the 'end of an era', and Elizabeth Pye's paper elsewhere in this issue describes Ione's part in building up the present Conservation Department at the Institute. 1990 also saw the creation of a readership in Archaeological Conservation at the Institute (the first such appointment in the UK) and the decision to go ahead with the first phase of the Institute's development plan, providing improved facilities in the basement at Gordon Square. All this came on top of a concern that had been expressed for several years about the needs and prospects of conservation research, and the grounds for this concern are examined in more detail below. But first we need to consider what we mean by archaeological conservation.

Some of the facets of archaeological conservation are depicted in Figure 1. The *artefact in situ* could be an object in the ground, a wreck on the sea bed, a rock painting, a standing monument, or even – by more imaginative definition – an easel painting. Archaeological conservation is by no means restricted to the cleaning and treatment of excavated objects in the laboratory. It can embrace the *in situ* conservation of archaeological sites and historic monuments, the intensive examination of artefacts to reveal information about their composition and method of manufacture, the management of environments in which objects are kept, and the recording of an object's form and condition.

A Glance Backwards

Conservation research has been the subject of much scrutiny over the past few years. The Science and Engineering Research Council's 'Review of Science-based Archaeology' provides a convenient starting point, where we find that

'the position of conservation is curious, since it offers many scientific challenges and there is a widespread view that research is badly needed in such areas as treatment of waterlogged wood, textiles and leather, corroded metals, weathered stone and ancient glass. Yet there have been few applications to the Science-based Archaeology Committee, although it is prepared to fund the subject' (SERC, 1985:6)

and that

'there is still an element of 'recipes' in current conservation practice, which ought to be replaced by physical and chemical procedures which have been properly researched and adequately tested.' (1985:36).

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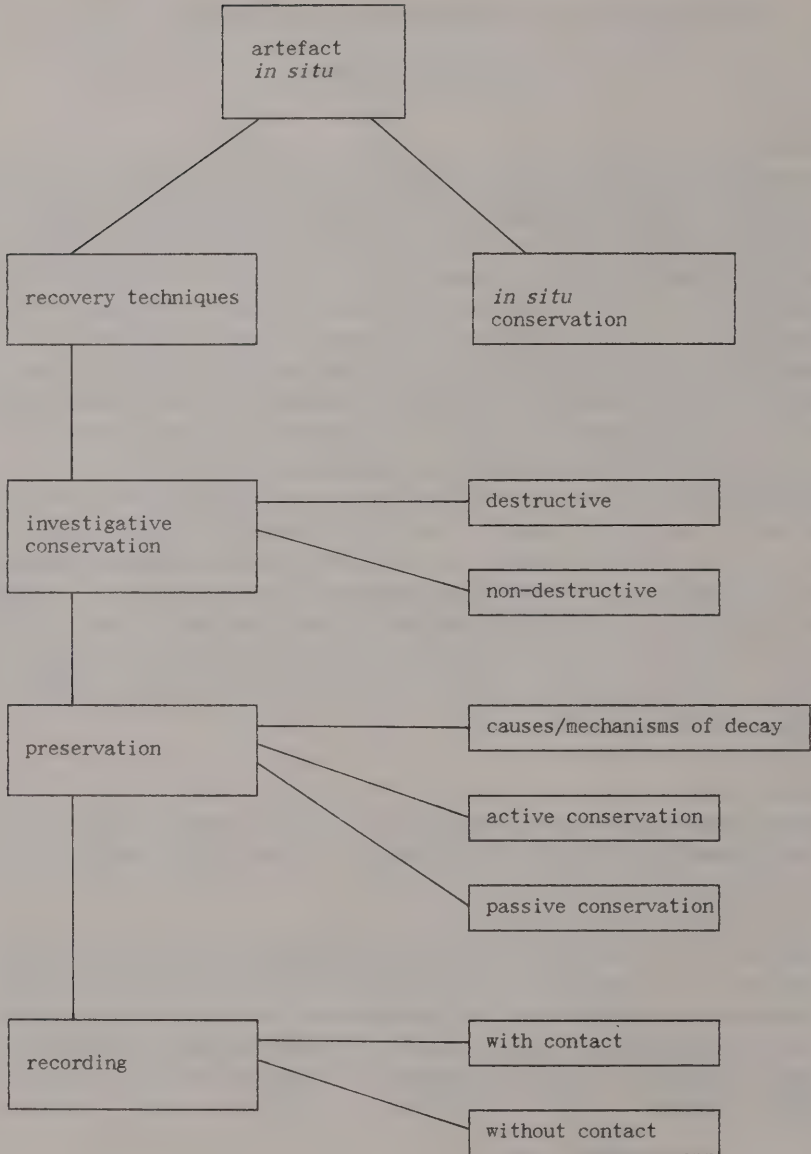


Fig. 1.

One of the outcomes of the SERC review was the appointment of a coordinator in science-based archaeology who, together with the Conservation Unit of the Museums and Galleries Commission, organised a meeting on 'Future Directions in Conservation Science' in 1988. The meeting, which was reported in *Conservation News* (UKIC, 1988: 14), served to highlight the following problems:

- very little primary research was being done;
- institutions carrying out research were able to concentrate only on solving their own in-house problems and were mainly doing specific developmental research;
- much developmental research was not being funded at all;
- conservation research was not attracting funds from archaeological, industrial and other sources which could legitimately be channelled towards it.

Suggestions for improving the situation included:

- a more effective pooling of equipment and expertise by major institutions;
- a more extensive use of partnerships between university and polytechnic science departments and conservation researchers (eg SERC CASE awards);
- a more entrepreneurial approach towards funding from the heritage industry and other industrial sponsors;
- the setting up of a small conservation 'think tank'.

The last suggestion led to the establishment of the 'Conservation Research Policy Group' under the auspices of the Museums and Galleries Commission. The Group's purpose was 'to address the problems affecting the development of research in conservation in the UK', and one of its first tasks was to produce an up-to-date directory of all the research currently in progress (MGC, 1991). Another successful initiative was a seminar on fund-raising in conservation, at which participants received practical advice on applying for both grants and sponsorship.

The Science-based Archaeology Committee continued to take particular interest in conservation research, and in 1989 designated it as one of six 'areas of research for development'. But what were the key areas to support? The United Kingdom Institute for Conservation had produced a report in 1987 on 'Research Objectives in Archaeological Conservation' (UKIC, 1987), to supplement the CBA's report on 'Research Priorities in Archaeological Science' (CBA, 1987). The UKIC report was, however, something of a disappointment. It did not contain any substantial proposals for strengthening the research base of conservation and fell back on statements such as 'major changes in finance, organisation and coordination are required before archaeological conservation can efficiently expand its research capabilities'. Moreover, the list of research needs read more like a list of intractable conservation problems than well targeted embryonic research proposals. One got the impression that the problem lay as much in the shortage of suitably trained research staff as in the shortage of funds.

Is the position any better abroad? There are at least four windows onto international research that are readily available for perusal. First, there is 'Art and Archaeology Technical Abstracts' (IIC/GCI), which covers all aspects of archaeological conservation. Second, there is the ICCROM 'International Index of Conservation Research' (ICCROM, 1988), which sets out 'to create a directory of professionals who share a concern for the conservation of cultural heritage'

by listing their broad research interests. Thirdly, there is 'Research Abstracts of the Scientific Programme' (GCI, 1990), which gives detailed descriptions of the research programmes sponsored by the Getty Conservation Institute. And fourthly, there is the ICCROM 'Bibliography of Theses, Dissertations and Research Reports in Conservation' (ICCROM, 1990). Peering through these windows, one is struck by the enormous variety of research that is being undertaken and by the magnitude of the problems that have to be solved. But whilst some of the research is undoubtedly being carried out at a fundamental level, much of it mirrors the sort of activity that we see in the UK.

Is there something odd about conservation research which sets it apart from research in more traditional disciplines, or are we just suffering from a surfeit of introspection? I am inclined to think that there *is* something unusual about conservation, and that it stems from the imbalance between the level of research funding and the size of the problems that need to be solved. Think for a moment about the funding that goes into medical research, and yet we accept that we shall still die one day. Or think of the research that has gone into the development of paints for external joinery, yet we still expect to repaint our windows every few years. Conservation scientists, on the other hand, are apt to set themselves unattainable objectives and hope to achieve them on minimal funding. It is a tall order, for example, to look for a treatment that will consolidate crumbling stonework and then protect it against all the ravages of the weather for ever more. What is more, the treatment must be cheap, safe to use and completely invisible! Yet we try to find such a miraculous product more by serendipity than by undertaking the prerequisite research into decay mechanisms. It is rather like trying to find a cure for cancer by going along the supermarket shelves saying "Let's try oatcakes; let's try prune juice; let's try bananas ...", instead of undertaking the research into cell biology that will reveal how cancers develop and how they can be combated.

Peering Forwards

It is unlikely that we shall see a dramatic increase in the level of funding for conservation research in the foreseeable future. In this section, we try to look forwards to some of the ways in which the situation might nonetheless be improved.

Sharpening the focus of research

Much of the conservation research that is currently undertaken around the world is an integral part of the researcher's employment – in a museum laboratory, for example. He or she will be responsible for a number of other activities, and the research becomes a rather open-ended activity to be undertaken whenever other pressures permit. As a result, the research can be rather poorly focussed and not subject to the sort of regular scrutiny and review that would be imposed by a grant giving body. This is essentially a management problem (including self management). If good research is to be done, then it must be centred around clearly defined, attainable objectives, with a clearly stated timescale. We must learn to limit ourselves to a thorough, detailed investigation of a limited topic of strategic importance, rather than try to solve all the problems in one go.

A national conservation centre?

One way of co-ordinating research effort into well-focussed topics of strategic importance would be to gather it all together into a national conservation centre. This is an appealing idea which has been debated at intervals for decades, but which has never come to fruition. Its most recent airing was within the Conservation Research Policy Group, where it was advocated vigorously by the late Gerry Hedley.

Some parallels exist, notably in the Canadian Conservation Institute, but it is not a pattern that has been adopted widely. A major obstacle lies, inevitably, in securing the lump funding to set up such an institute. It is easier to build up existing facilities bit by bit than to find a very large sum in one go. And surely it is better for research to spring up around talented individuals wherever they are, than to restrict 'official' research to the corral of a national conservation centre? The Conservation Research Policy Group came to the conclusion that it would be preferable to promote several 'centres of excellence' rather than a single national centre. Whilst there might be a degree of overlap between research areas, an element of healthy competition can be beneficial, and it was sensible to target resources towards research groups that had demonstrated the ability or the potential to use them effectively.

This, to my mind, is the role for the Institute's proposed Centre for Conservation and Museum Sciences. The Centre should not (as some have proposed) believe itself to be *the* national conservation centre – this would be to disregard the vital contributions being made in many centres around the UK. Rather, we should build on our existing expertise to create a vigorous research centre that engenders excellence and *earns* its respect and position in the professional community. If we become so good that all others pale beside us, all well and good; but excellence has to be achieved – it is not attained merely through good funding and a sign over the door that reads 'National Conservation Centre'.

Training for excellence

If one cannot have a centre of excellence without the excellence, how is the excellence to be achieved? One requisite is clearly a core of experienced staff, who have both a scientific training and a clear perception of conservation issues. The teams must be large enough to maintain continuity and to allow some turnover, thus bringing in new ideas and approaches. This is feasible in a university context but less easy to achieve in a small museum laboratory. And there has to be suitable training in conservation research for those who join the team. This may be acquired on the job or through a PhD studentship, but there is also a case for a training in conservation science – a view that was expressed forcibly at the 1989 Bologna conference on 'Science, Technology and the European Cultural Heritage' (EEC, 1991). Science is one component in most conservation courses, but not at a level that will equip the student to undertake fundamental research thereafter. The primary training of the conservation scientist must normally be in science. Possible courses that are being considered at present within UCL and Birkbeck College include a 'Chemistry with Conservation' BSc course, and masters degrees in conservation and in analytical chemistry/conservation. These would offer primary training in science for those who wished to find a career within conservation and would be among the first in the world to do so.

Funding for research

Whilst it is true that there is unlikely to be any dramatic increase in the level of funding for conservation research in the foreseeable future, we must not close our eyes to the possibilities that do exist. Funding sometimes appears from unlikely sources: NATO, the EEC and the Central Electricity Generating Board have all, within the past few years, funded major research programmes on the weathering of buildings and monuments. And we must not be too introspective – we need to build links with research teams in other fields whose work is nonetheless relevant to conservation. Conservators are not the only people who want to stop the corrosion of iron, for example, and sometimes we can learn from those whose only objective is exactly the opposite of our own – work on the bio-degradation of plastics, for example, can be relevant to the conservator who is trying to *stop* the degradation of synthetic polymers. Funding is not going to be easy, but neither should we be so disheartened that we do not bother to seek it.

Topics for Research

This is not the place to present a shopping list of research topics, but it may be useful to present a personal view of the main areas in which fundamental research is required. First and foremost comes research into the causes and mechanisms of deterioration, both in the ground and after excavation. Biological, chemical and physical factors can all play a part, and much of our present knowledge of decay mechanisms is purely superficial. Once they are fully understood, we shall be better able to devise rational treatments (both passive and active) to prevent further decay. The development of ‘custom built’ polymers may be necessary, for we have relied for too long on what is available from other industries, and techniques for *in situ* polymerisation will need to be refined. At the same time, we must accept that no treatments are likely to be found that will ensure the survival of artefacts for perpetuity, and that an essential part of responsible conservation must consist of recording artefacts in as full and permanent a manner as possible. Non-tactile techniques which produce a digital record of three-dimensional form are already being investigated and are particularly attractive: they offer the possibility of detailed interrogation on graphics screens, of highly accurate reproductions, and of indefinite curation. Less fundamental, but equally important research is required in the non-destructive examination of artefacts, in the development of cleaning techniques, in the application of new analytical techniques, and in the development of reliable techniques for assessing the long-term effectiveness of treatments.

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Landscape Changes on Iona

by R. G. SCAIFE[†] and G. W. DIMBLEBY^{††}

Introduction

In 1981 Dr Richard Reece published his monograph 'Excavations in Iona 1964 to 1974'. In the course of the excavation of the vallum, that is the enclosing earthwork around the Columban settlement, the opportunity was taken to carry out pollen analyses on the old land surface beneath it. This technique is ideally suited to acidic soils, such as those of Iona, because acidity favours pollen preservation (Dimbleby 1985). In this case, whilst the interpretation was of necessity limited, it produced the first positive evidence about environmental conditions in the vicinity at the time the settlement was made.

Such evidence, however, was mainly of local significance and there remained scope for speculation about the general environment of Iona and possible impact of the Columban settlement on it. It was with these wider issues in view that Dr Reece raised the question of whether further sources of palaeo-environmental information could be obtained on the island. One obvious potential source was the peat-filled Lochan Mor, immediately west of the Abbey. This has been said to be the only deep peat on the island but which has been severely cut. This has previously been pollen analysed by Bohncke (in Barber 1981). Balaam (in Reece 1981), who carried out the soil pollen analyses on the samples from the vallum, also found that the upper layers of the peat deposit, spanning the historic period, had been destroyed by peat cutting and other disturbance. Dr Reece approached Professor Dimbleby who agreed to visit Iona and make a survey to assess the potentialities for other sources of palaeo-environmental evidence.

A ground survey was carried out over the whole island in 1982. The objective was to locate sites which could yield environmental information, particularly through pollen analysis. Other sources of evidence such as soil molluscs were not considered at this stage, but observations were made on buried soil profiles where they could be found.

The survey concentrated on locating sites which offered one or more of the following features which could be sources of pollen data:

Peat Accumulation

There is no blanket peat on Iona, so lake and basin sites were sought which might give a long sequence through the postglacial, including, most importantly, levels which were not disturbed in the historic period.

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Buried Old Land Surface

Old humus layers may be found covered either by natural deposits (*e.g.* blown sand) or beneath artificial structures such as field banks, other earthworks, or even beneath large masonry structures such as kerbstones. Such contexts represent the deposition of humus over a limited period of time, and therefore yield pollen spectra which in effect relate to a particular point in time. If such a buried surface can be dated this provides a valuable time fix in the vegetation history, but even when dating is not possible, it may be feasible to tie such a spectrum in with certain levels from a deep peat profile. A further advantage of buried surfaces is that they tend to reflect the local vegetation without the more regional influence which may affect peat deposits.

Old land surfaces may develop on various substrates, including material of secondary origin, *e.g.* blown sand, colluvium, or even man-made deposits. For instance, they may mark pause phases in the construction of large earthworks. In this they contrast with the third site category, the buried soil profile.

Buried Soil Profiles

A soil profile is the product of biological and chemical development over a long period of time under plant cover, and is marked by the appearance of a succession of horizons in the body of the profile. On Iona, soil profiles are usually less than a metre in depth. In acid soils, downwash may also move pollen slowly down the profile, so that serial sampling can produce pollen distribution curves which reflect changes in the vegetation with time. The diagrams produced by Balaam (1981) are examples of this.

In an undisturbed situation a buried soil profile will include the old land surface as a recognisable layer of humus. However, this may be missing where there has been disturbance, *e.g.* by fire or cultivation; sometimes secondary surfaces have developed which are not conformable with the soil profile beneath. These can normally be recognised by discontinuity in the pollen curves.

These are the contexts which were being sought in the 1982 survey, with particular importance being attached to the first. Ideally what is needed is a peat profile giving a continuous pollen record from the Late Glacial to the present day. Such a sequence would give a framework into which buried surfaces of any age could be fitted.

Results of Survey

Examples of all three types of sites were located in the survey. Spot samples were taken from a number of them in order to see whether they contained pollen. In the light of the results (Appendix A) the island has been divided into three areas, I - III, as shown in Figure 1. Areas I and III were dominated by acidic rocky terrain, whilst Area II, the 'waist' of the island, was characterised by blown shell sand. Though a number of sites were found in Area II falling into the second and third site categories, these were in deposits of high pH and proved to be relatively poor in pollen (Appendix B). Two sites with pollen-rich peat were located on the southern margin of this area.

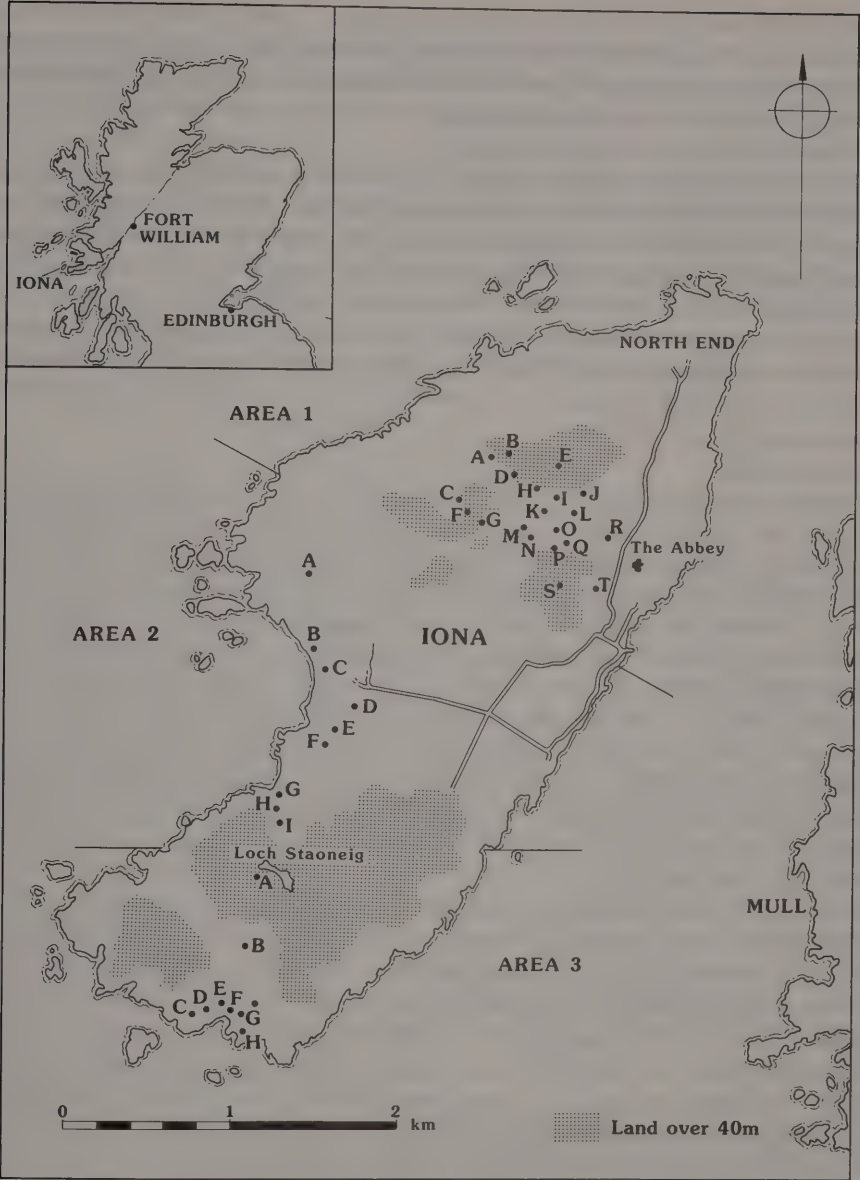


Fig. 1. Map of site locations

Both the other areas produced small basin sites with 2 - 3m peat which, probably because of their small size and remoteness from habitation, showed no sign of having been disturbed by turf-cutting. Both areas were criss-crossed by field boundaries, mostly banks showing various degrees of dilapidation. Modern divisions, especially in Area I, are made by wire fences, which do not always follow the older bank alignments.

On the basis of this survey and the spot analyses it was decided to concentrate initially on Area I, which not only had a choice of peat sites as well as buried land surfaces, but also included the site of the Abbey and the vallum which Balaam (1981) had already investigated. The other two areas, therefore, will not be described further in this paper, though it is worth mentioning that both are worthy of further work on the sites located (see Figure 1 and Appendices A and C). Of particular importance is a larger area of peat in the vicinity of Loch Staoineig in Area III. This has now been cored to a depth of 4.5 metres and is currently being analysed by Dr Scaife.

Northern Iona (Area I)

Present Landscape

Geologically, northern Iona consists of Lewisian Gneiss on the west side and Torridonian rocks with some metamorphosed sedimentaries on the east. The whole landscape is a complex of rocky knolls and hollows, the only conspicuous feature being the rounded hill of Dun I (100m) (Figure 1). Though there are limited areas where the soils are influenced by basic rocks, overall the vegetation is acidic in character, being rough moorland with abundant heather (*Calluna*) on the dry ground and acidic bog with sedges and *Sphagnum* in the hollows. There are few archaeological sites in the area, apart from the Abbey and its associated earthworks. There is a small Bronze Age or Late Neolithic cairn (Site T) which has been disturbed by a central excavation. A probe of the outer part of the mound showed a buried soil developed in acid sand, though it did not appear to show bleaching. The only other structure is the Culdee (or Hermit's) Cell (Site C), now merely a circular wall of stones set on a base of earth and large stones. This presumably dates to the time of the Culdees, a religious sect which flourished in Ireland between the 8th and 13th centuries AD.

The sites which were identified in the survey are marked in Figure 1 by the letters A to T. Apart from the two sites just mentioned, and Site Q, the Lochan Mor, these are either basin sites with peat or old land surfaces buried beneath field banks, *etc.* (See Appendix A.) The area has clearly been more intensively used for pastoralism in the past, as shown by the old field banks over much of the area. We do not know whether these banks would have been topped by fences or hedges; today wire fences restrict the movement of stock. The only part suitable for arable agriculture is along the east coast strip, though on the south-facing slope of Dun I there is a patch of derelict lazybeds (which may repay palynological examination).

In the light of the results from the spot samples collected in the survey it was decided to concentrate initially on one buried soil and a peat profile some 500m from it. The site chosen for the buried soil was Site I, where the soil buried beneath a derelict field bank proved to be rich in pollen, both in species and in quantity (see Appendix B). A peat basin, Site G, was selected for the peat core. In order to carry out detailed sampling a second visit was made to Iona in 1983. Dr Scaife carried out the sampling and the subsequent pollen analyses. He also made the test analyses on the spot samples brought back from the survey.

Detailed Sampling, 1983: Aims

The analysis of the peat core from Site G will be discussed in detail in order to present the postglacial sequence of vegetation changes that it reveals. This will be compared with other work in western Scotland to bring out those features of vegetation history which are peculiar to an off-shore island like Iona.

The problem of identifying that point in the upper part of the core which corresponds with 563 AD, the date of Columban settlement will be discussed, leading to a consideration in 'Comparison of Spectra of Columban Age' below, of the land use of that time in the light of these data and those published by Bohncke (in Barber 1981) and Balaam (in Reece 1981). The buried soil at Site I, which is assumed to be considerably later than the Columban settlement, will then be discussed, in 'The Buried Soil at Site I' below, both in relation to the peat core and the evidence it provides of the vegetation and land use at the site itself. In both cases, particular attention will be paid to the changes in the landscape, culminating in the present state of the land and the use which can be made of it in modern times.

Pollen Analysis of Site G

Methodology

Samples for pollen analysis were obtained in July 1983 using a standard Russian (Jowsey) peat corer. Cores obtained from Site G (NM 2779 2482) presented here, and a number of other peat basins (Appendix A) and from Loch Staoineig (NGR NM 266226) were sealed in plastic drainpipe tubes and placed in cool store. Sampling was undertaken in the laboratory where an 8cm interval was used to ascertain the temporal extent of the peat sequence. Because of the apparently compacted sequence spanning the Flandrian, the uppermost 50cm of the sequence which include the phases of anthropogenic activity have been analysed at 4cm intervals. The sub-fossil pollen and spores were extracted using standard pollen extraction procedures (Faegri and Iversen 1974, Moore and Webb 1978) and included treatment with NaOH (10%); HF for removal of silica and Erdtman's acetolysis for removal of cellulose. The concentrated microfossils were stained with aqueous safranin and mounted in glycerol jelly. Turning of pollen grains to facilitate identification of problematic grains was carried out using a hot dissecting needle. A total count of 500 per level was made from greater than two slides to avoid the effects of non-random distribution of pollen and spores on the slides. Where pollen frequencies were low, lesser totals were counted such as at 250cm. The pollen data are presented in diagram form (Figure 2). All taxa are presented as a percentage of total pollen and spores as a percentage of total pollen plus spores.

Comparative pollen from western Scotland

During the post-war period, there have been a considerable number of pollen analyses carried out on peat mires in western Scotland. The region is one which is relatively well understood in terms of Late-Devensian and Flandrian vegetation and environmental changes. As has been noted by Walker and Lowe (1985), the landscape changes which occurred in the Hebridian islands are less clearly understood. This is unfortunate since it is in this region that there occurred substantial regional differences in the character and dominance of vegetation communities throughout the Late-Devensian and Flandrian. Earlier pollen studies which have been consulted in relation to the data presented here include those from Skye (Birks 1973, Birks and Williams

1983 and Williams 1977), the Isle of Lewis (Birks and Madsen 1979) and on Iona by Bohncke (in Barber 1981). Undoubtedly, however, the most fundamental comparisons are made here with the very detailed pollen and radiocarbon-dated peat and sediment profiles obtained from the Isle of Mull by Walker and Lowe (Walker and Lowe 1982, 1985, 1987; Lowe and Walker 1986a, 1986b; Dawson, Lowe and Walker 1987 and Walker, Gray and Lowe 1985). The substantial number of stratigraphical sequences analysed by these workers has enabled a detailed picture, both spatially and temporally, of the character of Late Devensian and Flandrian vegetation of Mull. Summaries of these changes and their dates are given in Walker and Lowe 1985, 1987 and Dawson, Lowe and Walker 1987 and are summarised in Table 1.

Table 1. Generalised sequence of vegetation changes on Mull. Data taken from Walker and Lowe 1987 and Dawson, Lowe and Walker 1987.

<i>Radiocarbon yrs B.P.</i>	<i>Generalised pollen succession for Mull</i>
– Present	Expansion of grassland, heathland and ombrogenous mire communities. Anthropogenic impact.
– 4000	<i>Alnus glutinosa</i> expansion. Decline in <i>Betula</i> , <i>Ulmus</i> , <i>Quercus</i> ,
– 6200 MID FLANDRIAN	Woodland (<i>Betula</i> , <i>Corylus</i> , <i>Quercus</i> , <i>Ulmus</i>) heathland, grassland
– 8000	<i>Corylus</i>
– 8 800	<i>Betula-Corylus</i>
– 9000	
– 9200	<i>Betula-Juniperus</i>
– 9400 EARLY FLANDRIAN	
– 9600	<i>Juniperus</i>
– 10000	<i>Empetrum</i> -Gramineae
– 10 200	<i>Rumex</i>
– 10400 LOCH LOMOND STADIAL	
– 10600	<i>Rumex-Selaginella</i> -Cyperaceae
	<i>Selaginella</i> -Cyperaceae-Gramineae

The Pollen Zonation from Site G.

This small peat and sediment filled basin was chosen for further study because, unlike other peaty areas, it appeared to be undisturbed. Topographically the site is a small basin of some 50 metres in diameter which filled with lake sediments in the lower levels and peat in the upper horizons. The lower sediments are of gyttja and the upper parts comprise largely monocotyledonous (grass and sedge) and *Sphagnum* remains.

For ease of description and discussion of the vegetational changes which occur and are illustrated (Figures 2.a to 2.d) from Site G, five pollen assemblage zones have been recognised on the basis of the inherent changes in the biostratigraphy. These have been designated IO:1 from the base at 250cm to IO:5 at the present surface of the mire. A description of these characteristics is as follows:

IO:1a; 250cm. Basal grey organic lake sediments containing low APF characterised by ericaceous dwarf shrubs. *Erica* (30%) and *Empetrum* (18%) predominate. Herb taxa are not diverse and are dominated by autochthonous *Myriophyllum alternifolium* (35%) with Gramineae, Cyperaceae, *Taraxacum* type and *Plantago maritima*. Arboreal pollen percentages are low. Estimated date of these sediments is Late Devensian, Loch Lomond readvance (Zone III).

IO:1b; 240 - 190cm. Lacustrine sediments with low APF. A full count was not possible, but substantial quantities of *Myriophyllum alternifolium* and *M. oppositifolium* were noted and attest to the continued importance of *Myriophyllum* during the latter stages of the Loch Lomond readvance or early Flandrian at c. 10,000 BP.

IO:2; 190 - 148cm. Organic, lacustrine silts characterised by high absolute pollen frequencies. The pollen zone is dominated by increasing percentages of *Betula* (to 25%) and *Juniperus* the latter diminishing from its highest values at the base of the zone. Dwarf shrubs are evident, being dominated by *Empetrum*. Herbaceous pollen indicates a relatively diverse flora dominated by Gramineae but with notable percentages of *Plantago maritima*, *P. lanceolata*, *Ranunculus* type and Rosaceous taxa, all of which in general decline throughout this zone. Autochthonous taxa are well represented by high frequencies of *Myriophyllum* (*M. alternifolium* and *M. oppositifolium*) and Cyperaceae. Other aquatic and wetland taxa are present and include *Alisma plantago-aquatica*, *Potamogeton*, *Filipendula*, *Menyanthes* and *Typha angustifolia* type (including *Sparganium*) plus taxa not easily differentiable to lower taxonomic levels (e.g. *Equisetum*). *Salix* and *Filipendula* have peaks at the top of the zone.

IO:3; 148 - 92cm. Stratigraphically this zone is differentiated by a marked change from organic lacustrine silts of the previous zones to *Sphagnum*-Cyperaceae in the palynostratigraphy with *Sphagnum* spores (95%) and the rust spores of *Tilletia* (75%) (Eckblad 1975) becoming the dominant taxa present. Aquatic taxa present in IO:2 are correspondingly absent from the spectrum. Dry land taxa exhibit an overall reduction in diversity but with ericaceous types becoming dominant (*Calluna* 30%; *Erica* 25%; *Empetrum* 40%) with *Betula* and *Corylus* type. The latter rises from absence at the base of this zone to high values in the subsequent zone. From Zone IO:4 at c. 120cm sporadic occurrences of deciduous trees (*Ulmus*, *Quercus*, *Alnus* and *Myrica*) are evident.

IO:4; 92 - 46cm. Stratigraphically, as with IO:3, the zone is characterised by high values of *Sphagnum* and *Tilletia* spores which are matched by the *Sphagnum*/*Carex* peats of this zone. Cyperaceae, however, increase at the top. The zone is delimited on the basis of the marked decline of *Erica* and *Empetrum* at the base of the zone and from the increase in values of *Betula* and high

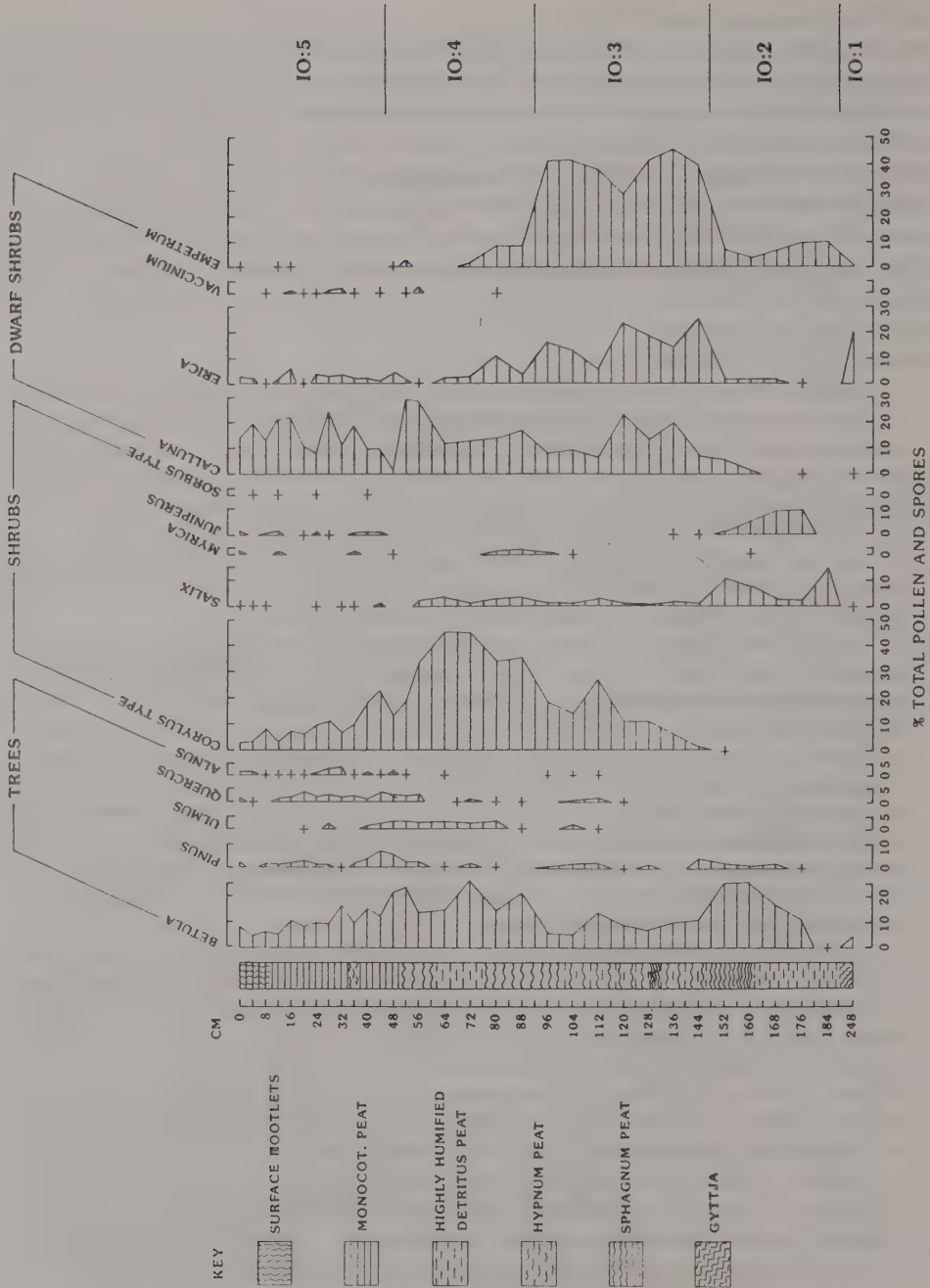
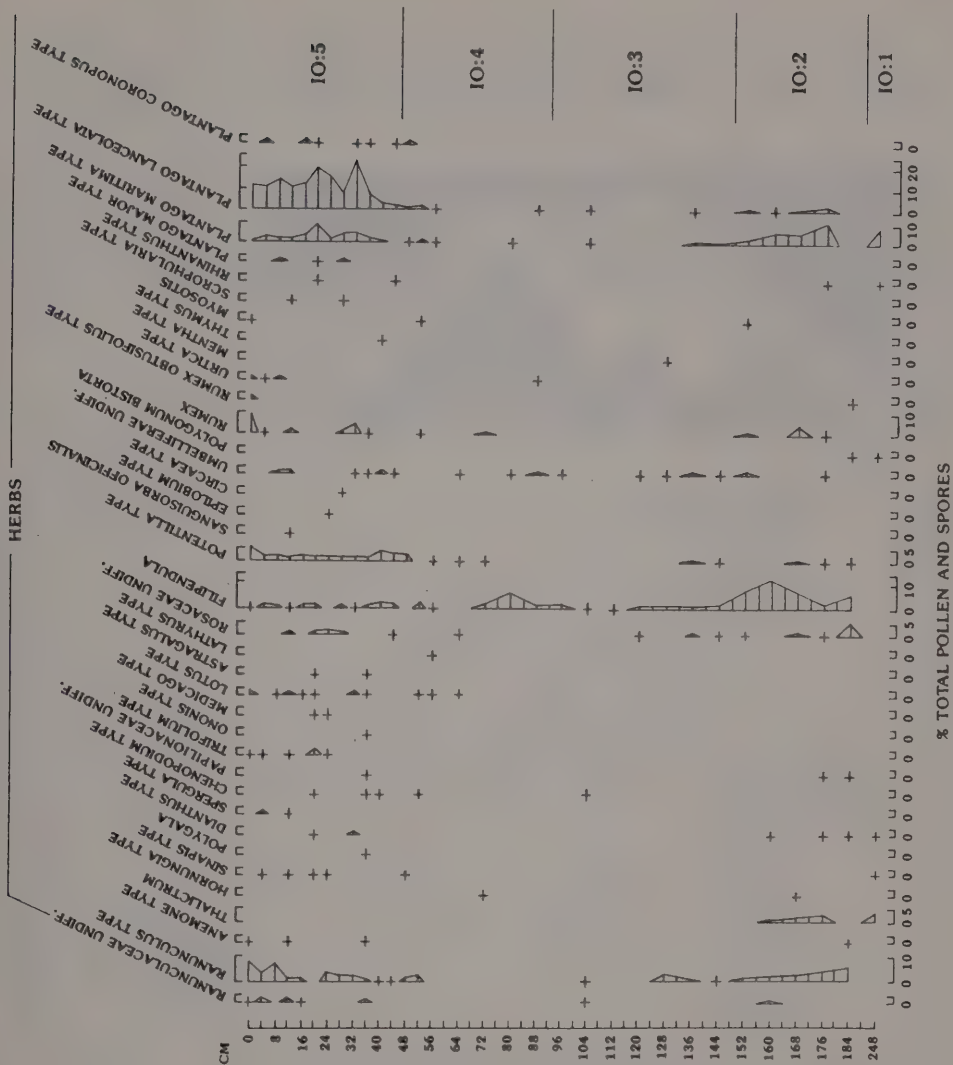


Fig. 2. Site G Peat Basin Pollen Diagram (continued overleaf)



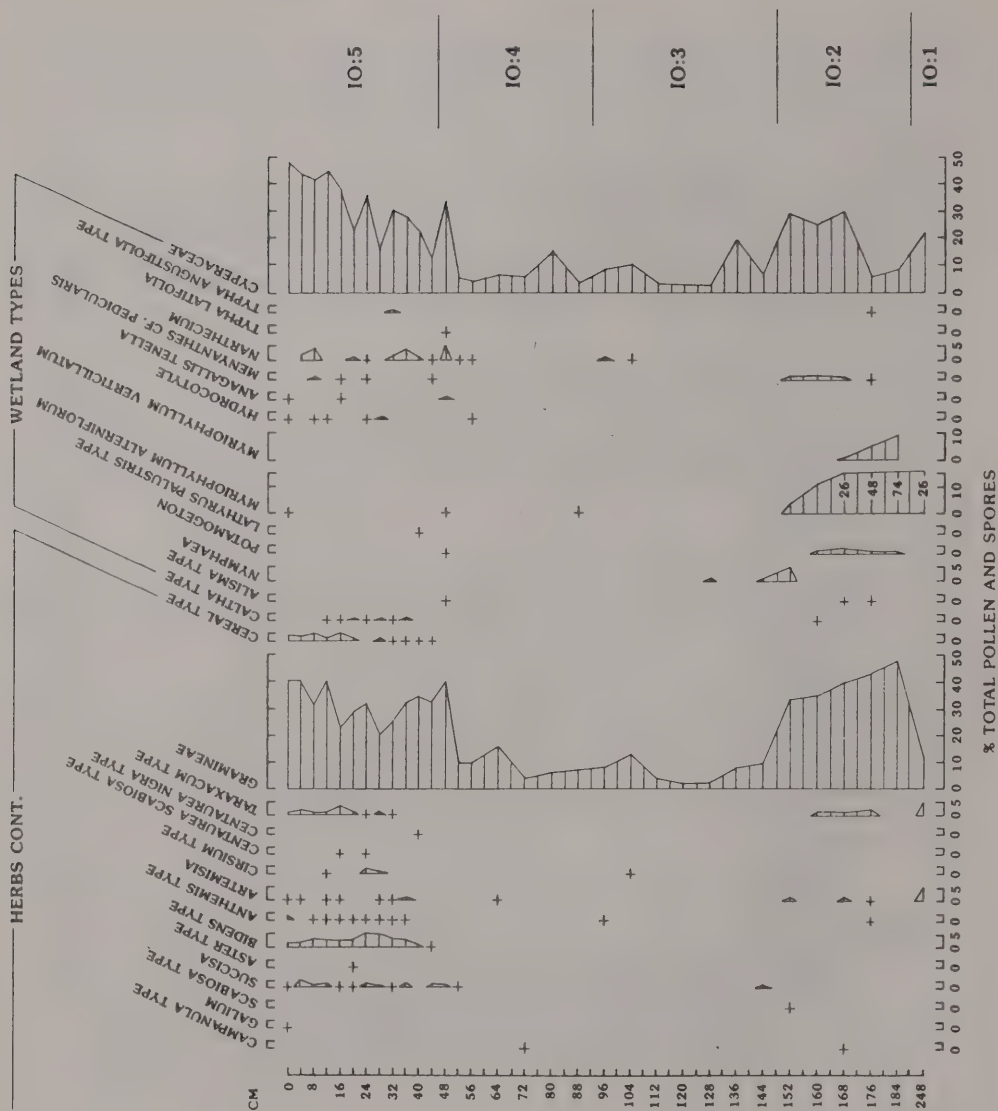


Fig. 2. Site G Peat Basin Pollen Diagram (continued from previous pages)

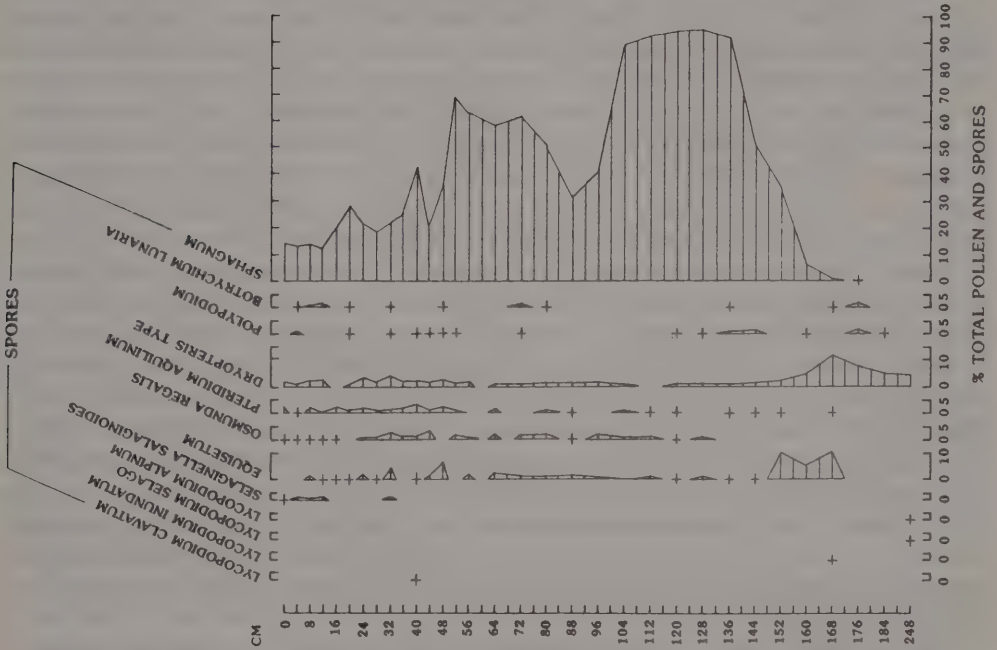
10:5

10:4

10:3

10:2

10:1



values of *Corylus* type (to 45% TP) and which attain their highest values in this pollen core. Although remaining in low percentages throughout this spectrum, *Ulmus* shows some increase to a consistent presence (2% TP) from only sporadic occurrences in Zone IO:3.

IO:5; 44 - 0cm. This is delimited by declines in *Betula*, *Corylus*, *Quercus* and *Ulmus*. In contrast, non-arboreal pollen percentages rise sharply with an overall increase in diversity of taxa. These are dominated by Gramineae, *Plantago lanceolata*, Ranunculaceae, Rosaceous taxa (*Potentilla* type) and Compositae taxa. Of special note is the first occurrence of large Gramineae (cereal type) pollen. *Betula*, *Corylus* type and *Calluna* remain important from the preceding Zone IO:4. Stratigraphically, the peats continue as predominantly sedge peats, illustrated by the change from *Sphagnum* to sedge peats in the top 50cm of the peat.

Discussion of Pollen Stratigraphy at Site G.

As noted above, this peat sequence is typical of a number of such accumulations occurring in isolated, small topographic basins within the igneous lithology of the northern part of the island. It is immediately apparent on inspection of the northern pollen sequence that a long temporal span is represented in the 250cm of lacustrine sediment and overlying peat. In the interpretation of this sequence, consideration has been given to two factors. Firstly, there is much indication of peat cutting for fuel in the more extensive low lying moor where peat cuts and baulks can still be seen (Site Q). This was also noted by Bohncke (in Barber 1981, 368). The somewhat diminutive extent of this basin peat accumulation and its situation away from areas of historical settlement suggest that this biostratigraphical sequence escaped the depredations of peat cutting. Furthermore, analysis of the peat stratigraphy has failed to show any marked evidence for any peat cutting. Such considerations have been especially important in the analysis of the uppermost Zone IO:5 which might be expected to provide evidence of anthropogenic vegetation changes. Secondly, the character of such a small basin and therefore its pollen catchment area must be considered. A small basin such as this might be expected to represent in its lower lacustrine levels the product of subaerial pollen input, that of the fluvial catchment of the lake basin and the autochthonous aquatic taxa. The upper *Sphagnum* and *Carex* peat would not have received pollen from those fluvial sources noted. Under such situations, therefore, a fairly localised vegetation history could be expected from such a small mire. It is, however, similarly apparent that the most dense or extensive vegetation indicated throughout the sequence was that of open scrub/woodland of *Betula* and *Corylus* with areas of heliophytic communities – heathland and grassland. This factor and the relatively high altitude of the basin of accumulation at Site G could reasonably be expected to provide a spectrum relating at least to the region of the northern part of Iona.

The low pollen diversity at the base of the sequence (Zone IO:1) is possibly due to the less than adequate pollen sum counted from this level. Absolute pollen frequencies were low and negated a normal count of 600 grains. It is, however, clear from this level that a landscape devoid of trees or scrub woodland other than perhaps occasional *Betula* existed. Ericaceous dwarf shrub communities (*Erica* and *Empetrum*) prevailed with some indications of grassland (Gramineae, *Plantago maritima* and *Taraxacum* type) also present. This pollen assemblage zone is comparable with data obtained from the Isle of Mull (Walker and Lowe 1985; Dawson et al. 1987) where the expansion and dominance of crowberry heath (*Empetrum*) has been noted

in Late Loch Lomond Stadial and early Flandrian sequences. Similarly this phenomenon has been noted at many sites in western Scotland where it has been interpreted as a response to climatic amelioration at the end of Late Devensian. On Mull, at Loch an t-Suidhe (Walker and Lowe 1982, 1985, 601) and at Gribun, Isle of Mull (Walker and Lowe 1987; Dawson et al. 1987) this *Empetrum* phase has been dated to 10,200 BP and 10,000 BP respectively. However, the importance of *Empetrum* during the Late Devensian interstadial has also been recognised on Mull (Lowe and Walker 1986) and here, it must also be considered that the basal sample at Site G (Zone IO:1) represents the latter part of the Late Devensian interstadial (Allerød/Windermere). By inference, the indications are that this zone is of a Late Devensian or Early Flandrian age and therefore represents the initial sediments in the lake basin. Small quantities of *Betula* and *Salix* might be attributable to *Betula nana* and dwarf *Salix* types although it has not been possible to use those criteria of Birks (1968) for differentiation because of shrinkage caused by long HF treatment for silica removal. No *Betula* pollen grains with the general morphological characteristics of *B. nana* were noted (small size, more rounded outline and thinner pores). *Lycopodium alpinum* and *L. selago* spores have also been noted during this early phase. These have similarly been recorded at Glen More, Isle of Mull, (Walker and Lowe 1985, 595) where these writers have established the regional pollen assemblage Zone GM-1 *Empetrum* - Gramineae - *Lycopodium*. Thus, it is almost certain that pollen assemblage Zone IO:1a correlates directly with this pollen assemblage zone and that we are seeing in this basal zone the response of vegetation to climatic amelioration which also caused deglaciation in much of this region at the close of the Late Devensian.

Zone IO:1b was almost devoid of pollen, with the exception of *Myriophyllum*, and as such pollen counts were not obtained. The dominance of *Myriophyllum* (*M. alternifolium* and *M. oppositifolium*) indicates the existence of a shallow open water lake, a fact again clearly evidenced in the lithostratigraphy. The dominance of aquatic macrophytes is strongly characteristic of the basal limnic deposits of Iona and Mull. On Mull, the occurrence of *Myriophyllum alternifolium* and *Potamogeton* spp. has similarly been noted and discussed (Walker and Lowe 1985, 599) at Fhuoran and Coire Clachach. It is likely that increasing dominance of *Myriophyllum* in the pollen spectra is a sound indication of temperature amelioration and that this is again indicative of such amelioration at the start of the Flandrian. This period also marks the start of a well defined hydrosere succession which culminated in *Sphagnum* mire development by the end of Zone IO:2.

From the beginning of Zone IO:2 at 190cm there is the initiation of a typical early Flandrian (Flandrian IA) sequence. This is illustrated by the presence of *Juniperus* which attains its highest values between 160 and 170cm but which subsequently declines due to the rapid colonisation of *Betula* shading out the more heliophilous juniper scrub. Various researchers in western Scotland have provided dates for the expansion of *Juniperus* and/or *Betula*. It is clear that there is a degree of asynchronicity in these early Flandrian vegetation changes. In the absence of radiocarbon dates from profile G in Iona, recourse must again be made to those obtained from Mull, where the maximum *Juniperus* expansion has been dated to 9600 - 9500 BP at Coire Clachach and Torness (Walker and Lowe 1985). It seems likely, therefore, that pollen assemblages Zone IO:2 similarly dates to this period. This zone can therefore be viewed as being

the period from c. 10,000 BP at the close of the Late Devensian stage. Temperature amelioration at the close of Zone III (Loch Lomond readvance) caused the initiation of juniper flowering once its necessary growth thresholds were exceeded and causing a real expansion in the area of its dominance. *Betula* became the primary coloniser during the Flandrian Zone Ia and was perhaps responsible for the ousting of the juniper. It is clear that *Betula* (*B. pubescens*) rapidly expanded over much of the local area as attested by the pollen percentages which reach 25% of total pollen. It must also be considered that some of this pollen may have derived from other areas such as Mull where it became similarly dominant (Walker and Lowe 1987, 343) between 9500 and 9000 BP. It is, however, certain that the remaining presence and indeed the expansion of ericaceous communities in this and the subsequent zone (IO:3) illustrated the continuation of open habitats which could have maintained *Juniperus* in greater importance. Thus, some form of climatic change (see below) may have been responsible for its demise. As is typical of early Flandrian (F:Ia) vegetation, the pollen spectra show the representations of a number of different vegetation communities which remained for the early Flandrian as relics of Late Devensian heliophilous plant communities. These formed mosaics of plant communities throughout the different habitats of the island. *Empetrum* is grossly underrepresented in pollen spectra and even its presence in this zone to 20% (although see below for discussion of Zone IO:3) attests to the existence of *Empetrum* dominated heathland. High values of Gramineae and a range of pollen taxa including *Plantago maritima*, *Plantago lanceolata*, Compositae, *Ranunculus* type and Rosaceae types may be indicative of short turf grassland communities. Both an aquatic autochthonous component and evidence of wet bog and fen flushes are also present. The former shows clearly a typical hydrosere succession from one of water characterised by aquatic and marginal aquatic taxa. *Myriophyllum alternifolium* and *M. oppositifolium* are the dominant taxa, both of which show sharply reduced pollen frequencies towards the middle and top of the above zone respectively. This decline was caused by the change to sedge and *Sphagnum* peat forming associations. This environment is also mirrored by *Potamogeton*, *Menyanthes* perhaps growing in remaining pools and by *Filipendula* in nearby wet ground. *Salix* shows some increase which is perhaps a response to the closure of open water and prior to colonisation by *Sphagnum* bog during the subsequent period of Zone IO:3.

The rational *Corylus* curve, (ie where its occurrence becomes continuous) starts at 152cm. Initially, only sporadic records at 144cm and 152cm attest to the progressive movement of *Corylus* into the region (although not at or close to Site G). The marked rise in *Corylus* from 148cm illustrates its colonisation on Iona or Mull where it formed extensive woodland and scrub growing with remaining *Betula*. The expansion of hazel woodland and scrub has been similarly noted and dated on Mull at between c. 9000 and 8000 BP (Walker and Lowe 1987, 345). Of particular importance in Zone IO:3 is the dominance of ericaceous communities characterised by *Calluna*, *Erica* sp. and *Empetrum*. This clearly shows that, during this period, a combination of acidic, base deficient local lithology and perhaps exposure in montane habitats at the site favoured the ericaceous ecosystem rather than the dominance of *Pinus*, as illustrated at other southwest Scottish and northwest Scottish sites during the early Flandrian period. The relatively low pollen productivity and dispersal characteristics of ericaceous taxa and *Empetrum* in particular suggest that this dominance of heathland communities was close to Site G forming either a

ground flora to open *Betula* and *Corylus* woodland and/or scrub or as open areas of heathland. This must remain speculative since no plant macro-fossils of heathland elements were recovered from the peat stratigraphy. It is interesting to note that other workers have discussed similar increases in heathland taxa at this time. *Empetrum* has also been shown to increase in response to anthropogenic activity in the later Flandrian period, from the Neolithic *Ulmus* decline onwards. This has been attributed to soil deterioration and climatic changes in association with such anthropogenic activity which may have caused soil degradation and acidification. Whilst anthropogenic activity is not postulated here, climatic changes (ie increasing wetness) may have caused similar soil depletion. This contrasts markedly with mainland Scotland, which at this date supported closed *Pinus* forest. As noted above, two sub-zones have been delimited in this zone. Sub-zone 'a' represents the landscape discussed above, that is, dominated by ericaceous communities. Sub-zone 'b', however, shows the first appearance of broadleaved deciduous trees but which are present only in sporadic and generally single occurrences from 120cm. These include *Ulmus*, *Quercus* and *Alnus* and may be regarded as elements of long distant transport, most likely originating from the mainland to the south. Their occurrence illustrates the migration of these taxa into the country during the late Boreal period (Flandrian Ic). Due to such low frequencies they are of no ecological importance at this time on Iona.

In the absence of radiocarbon dates (at present) for this profile, no definitive dating of the temporal boundaries can be placed upon the pollen Zone IO:3/IO:4 boundary. The suggested peat accumulation/time/depth curve (Figure 3) does, however, appear to provide a valuable indication that the suggested chronology is correct. Thus at 90cm, the marked decline in *Erica* and *Empetrum* appears to correspond with the generally accepted dates for the Boreal/Atlantic transition (FI/FII) at c. 7000 BP. At sites on the mainland of southwest Scotland oceanicity has been illustrated by rapidly rising values of *Alnus* at c. 7000 BP and the establishment of dominant *Quercus* and *Ulmus* forest or as open mosaic woodland with *Betula*. *Pinus*, where it had become established, was subject to competition from deciduous forest. A number of regions, particularly to the north and east of Scotland do show the continuance of coniferous woodland into the Atlantic (Flandrian II; Godwin's pollen Zone VIIa). On Iona, however, neither deciduous nor coniferous forest appears to have occurred. This is most likely to be due to the fact that *Pinus* had not maintained a position of dominance, or even importance during the early stages of the Flandrian of Iona.

Pollen Zone IO:4 clearly indicates that the climax arboreal elements of the middle Flandrian comprised dominant hazel woodland/scrib, interspersed with remaining heathland and grassland communities. This differs from Walker and Lowe's Mull data (e.g. Walker and Lowe 1987, 346 and Lowe and Walker 1986, 433) where there appeared to be a more diverse woodland flora of *Quercus*, *Ulmus* and *Pinus* with *Corylus* a constituent. However, Lowe and Walker (1986 and Walker and Lowe 1985) have clearly stated that the overall low values of arboreal taxa indicate that woodland development on Mull during the Mid-Flandrian was of limited extent. This view is commensurate with the data from Iona where only hazel scrib woodland with some *Betula* was locally important. The low percentages of *Ulmus* and *Quercus* are unlikely to be resultant from local growth and are more likely to have derived from localised growth on Mull and/or areas of the mainland. Thus it would appear that Iona, even during the climatic optimum (and

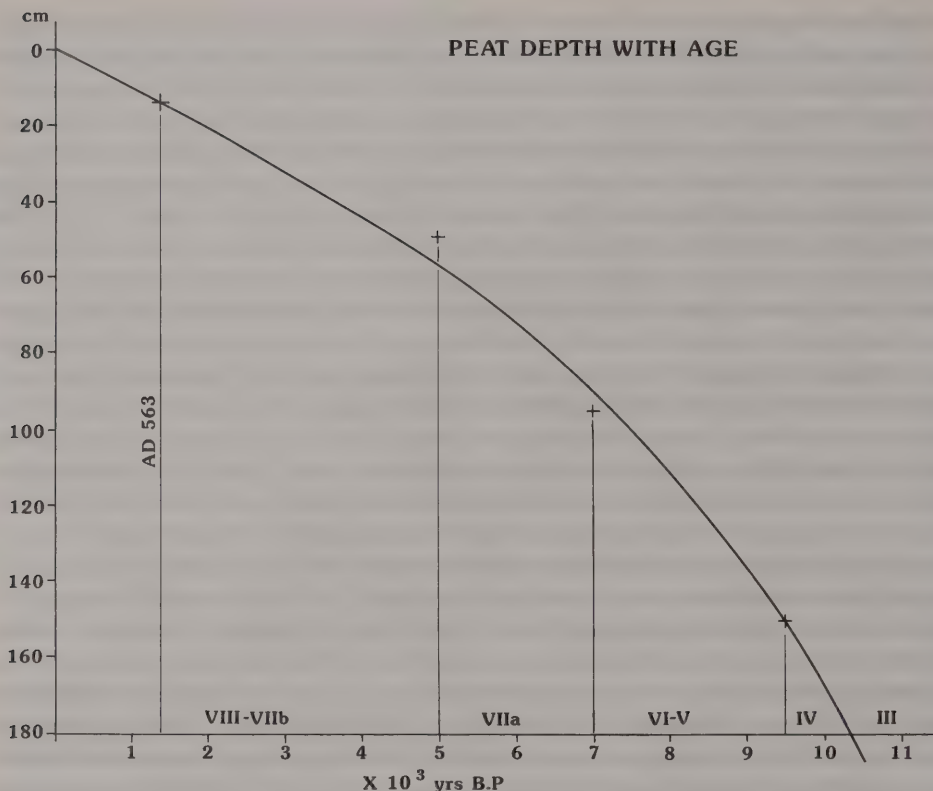


Fig. 3. Peat Depth/Age Curve

therefore the period of maximum vegetation and pedological development), supported only taxa (*Corylus* and *Betula*) normally associated with pioneer vegetation communities. Bohncke (in Barber 1981), studying the basal peats of Lochan Moor (ie. below the peat cutting horizons), similarly provides evidence that larger deciduous trees (*Quercus*, *Ulmus* and *Fraxinus*) were not present during this period. However, he similarly provides evidence for *Betula*, *Corylus*, *Salix* and *Sorbus* heliophilous shrub vegetation growing in the eastern lowland region of the island. These data may be due to a number of interrelated environmental factors which might include poor soils (acidic and leached) or exposure to prevailing winds.

The autochthonous component of the vegetation during this mid-Flandrian zone (IO:4) and the peat macrostratigraphy clearly show the continuance of the mire as a *Sphagnum* bog. The presence of *Osmunda regalis* and *Equisetum* indicate a degree of basiphilous vegetation perhaps in the marginal areas of this small peat basin or in local stream channels which perhaps were fluvial sources to this basin. This is enigmatic with regard to *Equisetum* because the spore

taxonomy does not allow determination to species level. It can be noted, however, that *Equisetum fluviatile* and *E. palustre* today grow in similar situations on or adjacent to this and other peat filled depressions. *Osmunda regalis* is, however, more diagnostic and of interest. Its first occurrence during Zone IO:3 (attributed to the Boreal period), can be viewed as an indication of thermophilous conditions. The increase in *Osmunda regalis* peaking between 74 and 82cm is evidence and an indication of more favourable climatic conditions during the mid-Flandrian.

From a depth of 48cm upwards, the effects of anthropogenic activity on the vegetation are clearly seen. The first indications of such alteration to the higher vegetation correspond with the decline of *Ulmus* pollen between 48cm and 40cm. This 'elm decline' is now widely regarded as a synchronous phenomenon (Smith and Pilcher 1973; Huntley and Birks 1983) which has been dated at c.5000 BP. The various proposed hypotheses for this phenomenon have been widely discussed in past literature and are clearly summarised by Smith (1981) and Scaife (1988). These postulations range from climatic causation to that of pure anthropogeny due to ring barking of elm trees, as suggested by Mitchell (1956) for Ireland; the use of *Ulmus* leaves as fodder (Troels-Smith 1960) in Switzerland or through disease vectors (Girling 1988). Whatever the cause for this most enigmatic of pollen events, it is clear that there is a strong inverse correlation between this event and the first occurrence of cereal type pollen in the pollen sum. Evidence of opening of the forest canopy is apparent here. The decline of *Ulmus*, as noted, is problematic and because of the relatively small percentages of *Ulmus*, it is most probable that the 'elm decline' seen here is in fact a more regional response rather than resulting from localised changes which were taking place on Iona. In the pollen diagrams from Mull, similar declining percentages of deciduous woodland taxa are evidenced (*Ulmus*, *Quercus*, and *Betula*) and the decline in *Ulmus* has been similarly regarded as reflecting the regional 'elm decline'. However, unlike Iona, at Gribun (Mull) the local presence of *Ulmus* has been postulated for the late 5th millennium BP. On Iona there is some evidence that other local woodland elements were also being altered at this time. Thus, *Corylus* and to a lesser extent, *Betula* percentages decline. The progressive decline of the woodland and scrub communities of Iona resulted in a landscape comprising largely grassland and heathland communities of both wet and dry character. These changes also correspond with the first occurrence of cereal type pollen in the pollen profile. Cereal pollen is here defined as those grains which have a diameter of greater than 45 μ and have a larger pore and annulus, thicker exine and a marked columellate structure.

In addition to the cereal pollen, there is a substantial diversity of herb pollen taxa which may be attributed to weeds associated with both arable and pastoral land use. The pollen evidence from the uppermost 50cm of profile G illustrates that once clearance of woodland had started to take place from the Neolithic, the environment became one of mixed herbaceous (pastoral grassland) and dwarf (ericaceous) shrub communities. The sporadic cereal pollen grains recorded from 48cm upwards provide evidence that at least some small scale cultivation was also being practised from the Neolithic onwards. This is similarly illustrated by Bohncke (1981) from the peats of the lowland area. The pollen analyses of Balaam (1981) and the pollen analysis of a buried soil profile (see 'The Buried Soil at Site I' below) can be correlated with this uppermost zone. It is likely that the cereal pollen and evidence of arable cultivation is under-

represented in this pollen diagram because of the topographical position of this peat basin in an area which is unlikely to have been suitable for arable cropping because of exposure to winds. It is more likely that the lower areas of the raised beach and stabilised shell sand dunes would have been more fertile.

In the absence of radiocarbon dates it is not possible to identify directly the level in this profile which corresponds with the arrival of Columba. However, accepting the peat depth/age curve (Figure 3) as being an indirect indication, the date of 563 AD (ie 1437 BP) would correspond to a peat depth of 15cm. In the next section comparison will be made with the pollen spectrum nearest to this level in Site G and the two buried land surfaces investigated by Balaam (1981).

Comparison of Spectra of Columban Age

Four pollen spectra are presently available which can be attributed to the time when Columba settled on Iona. These are from the old land surface buried beneath the vallum; they were reported on by Balaam (in Reece 1981), who published pollen diagrams of two sections of the old land surface and by Bohncke (in Barber 1981) who studied the ditch profile. From these diagrams it is apparent that in each case at the base of the earthwork there is an inverted turf set upon a truncated soil profile. For the present purpose, therefore, the old land surface is represented by the original surface of the turf before it was inverted. In Balaam's series 1 this is the sample at 71 - 73cm, and in Series 2 the one at 34 - 36cm. For simplicity in what follows, these will be referred to as Turf 1 and Turf 2. The high pollen frequencies at each of these levels show that they were indeed surfaces of cut turves and that they therefore would have had a close relationship with the contemporary pollen rain, and being highly organic are unlikely to be contaminated by older pollen from deeper in the soil profile.

The fourth sample is the one at the appropriate level in the profile from the peat basin (G), described above. Grounds have already been given for believing that the level corresponding with the settlement by Columba is at 15 cm depth. As sampling was at 4cm intervals the sample which most nearly corresponds to this is the one at 16cm, so it is the spectrum at this level that is taken for comparison. Inspection of the peat pollen diagram shows that, with the possible exception of Ranunculaceae (see above), there is no sudden change in the curves of any of the taxa associated with terrestrial habitats as compared with the next sample above. By selecting the 16cm sample for comparison, which might be just pre-Columban, we are clearly not missing any changes which might be linked to Columba's first settlement.

In all of these contemporary samples there is a long list of taxa, including many which are associated with agricultural land use. However, the great majority only occur at trace levels, and few give continuous curves. Their presence is clearly significant and should be borne in mind as a positive feature, but it is not possible to use them in a detailed comparison. For this we must rely on those taxa which show more consistent and higher values in some of the samples.

Changes in the tree pollen profile have already been shown from throughout the length (depth) of this profile. From this it is apparent that the tree species *Pinus*, *Ulmus*, *Quercus* and *Alnus*, whilst giving continuous curves earlier in the Postglacial, have never been major components of the pollen spectra on Iona. It seems likely that pollen of these trees was derived from the mainland or nearby Mull rather than growing on Iona itself. However, one established specimen of living *Quercus* was found in the present day moorland; it had a low spreading

habitat, not more than 50cm high. At the 16cm level in the peat profile only *Betula* and *Corylus*, which had been major woody species in earlier times, still persisted, and these were also declining. Bohncke has, however, suggested that *Fraxinus* was important in the sheltered eastern side of the island in a level of the ditch dated to 585 +/- 55 AD (GU - 1234) but which was possibly cleared by the monks for arable and pasture. He has, however, also suggested that the exposed areas of the island probably supported only shrub vegetation. This information is commensurate with the results of the peat and soil pollen analyses presented here. At present there is certainly *Betula* on the island but no *Corylus* was seen, though it is recorded for the relevant grid square in the *Atlas of the British Flora* (Perring and Walters 1962).

From three diagrams, Table 2 has been compiled to show the relative proportions of those taxa which occur as more than mere traces. The percentages quoted have been estimated from the diagrams, not from the original counts, so that they can only be approximate. The diagrams from the vallum turves are based on total pollen plus fern spores and thus were not strictly comparable with the peat profile, where the basis of calculation is total pollen. In Turf 1 the fern spore count is almost negligible, but in Turf 2 *Pteridium* made up 6% of the total. The figures quoted in Table 1 have therefore been adjusted so that all are in effect based on total pollen (excluding fern spores).

Table 2. Percentages of total pollen.

<i>Taxon</i>	<i>Turf 1</i>	<i>Turf 2</i>	<i>Peat 16cm</i>
<i>Betula</i>	1	1	10
<i>Corylus</i>	14	15	8
<i>Calluna</i>	49	42	24
Gramineae	26	29	23
Cerealia	-	-	1
<i>Plantago lanceolata</i>	1	1	10
<i>Potentilla</i>	-	1	1
<i>Pteridium</i>	-	7	1

From this table it is apparent that, not surprisingly, there is a correspondence between the two turf samples, but that the peat sample of equivalent age differs markedly. In the old land surface under the vallum, *Corylus* was the main woody species, whereas in the peat it is considerably lower and is exceeded by *Betula* which in the turves formed only a minor proportion. Whilst the Gramineae show similar values in all three samples, the peat alone shows levels of *Plantago lanceolata* which have no parallel in the turves. When found at high values this species may be associated with grazed grassland, so that a difference of land use may be indicated at the two sampling points. Indeed, the high values of *Calluna* in the turves, as compared with sizeable but lower values in the peat, could also be explained in terms of a different grazing regime.

These points will be developed further, but for the moment the most important fact to note is that two contemporary sites, only 700m apart, can give different pollen spectra. It is usually accepted that soil pollen samples are strongly influenced by local vegetation, and the same may be true of the peat samples. It is probably too optimistic to expect that any useful general statement can be made about the landscape from a single spectrum; rather it seems that then as

now, different forms of land use were being practised on a mosaic pattern and that this can only be evaluated by sampling at multiple points. It should be noted that another peat basin has been sampled, at Loch Staoineig, but the samples from this have not yet been analysed fully (currently under investigation).

The Buried Soil at Site I

As explained in the survey of 1982 ('Results of Survey' above), Iona is rich in field banks which are clearly of various ages and which preserve beneath them the recognisable remains of old land surfaces. The trial samples showed that some contained pollen in reasonable quantity and in a fine state of preservation. It was hoped to establish a chrono-sequence of pollen spectra from such buried soils, the difficulty being in establishing reliable dates. As will be shown, comparison with the deep peat core does not necessarily help in establishing relative dates. At this point in the work, only one such buried soil has been analysed in detail and it is considered here for three reasons: a) it illustrates the difficulty of dating such a site; b) the pollen assemblage was surprisingly rich; c) it was only 500m to the north east from the peat basin studied (above).

The features of the section through this field bank are shown in Figure 4. A turf-line was visible as a thin black line, that is, the old land surface (OLS). Below this is a dark brown sandy soil with slight indication of a disrupted leached layer extended down to the underlying rock, at a depth of 12cm. The bank above was made of similar sandy soil and was capped by large stones or boulders, probably derived from field clearance. A sequential series of samples was taken from the bedrock upwards as far as possible into the bank. The pollen diagram (Figure 5) shows that there was a very rich and diverse pollen assemblage and the APF indicates that though there were fluctuations in the total frequencies from sample to sample, there was no depth-related pattern which is characteristic of unmixed soils. In fact, there is remarkable uniformity of the percentage curves throughout the line of sampling, with no break at the old land surface.

From this evidence, it seems clear that the buried soil is a mixed soil, mixed perhaps by earthworms or by cultivation - probably hoe or spade cultivation on such a steep and stony site. The bank is clearly made of topsoil capped with stones and boulders which, as already suggested, are probably the result of field clearance.

The pollen diagram gives no evidence of ancient pollen relics, *e.g.* of trees or fern spores, and it can be assumed that the whole spectrum is roughly of one age. The lack of *Betula* pollen suggests that it is post-Columban, though the consistent record of *Corylus*, ranging up to 10% of the total pollen, points to the presence of *Corylus* in the landscape to a degree which is in strong contrast to its absence today. The assemblage is strongly agricultural and the almost continuous curve for *Cerealia* indicates that cereal farming was being practised. At the same time, there is a continuous curve for *Plantago lanceolata* at surprisingly high values, which is more suggestive of grazed grassland. Possibly some form of crop rotation was being practised. It is unlikely that the pollen of herbaceous species would be carried so far on the wind, even if like *Plantago* they are anemophilous, so the probability is that these plants were growing on or immediately adjacent to this site.

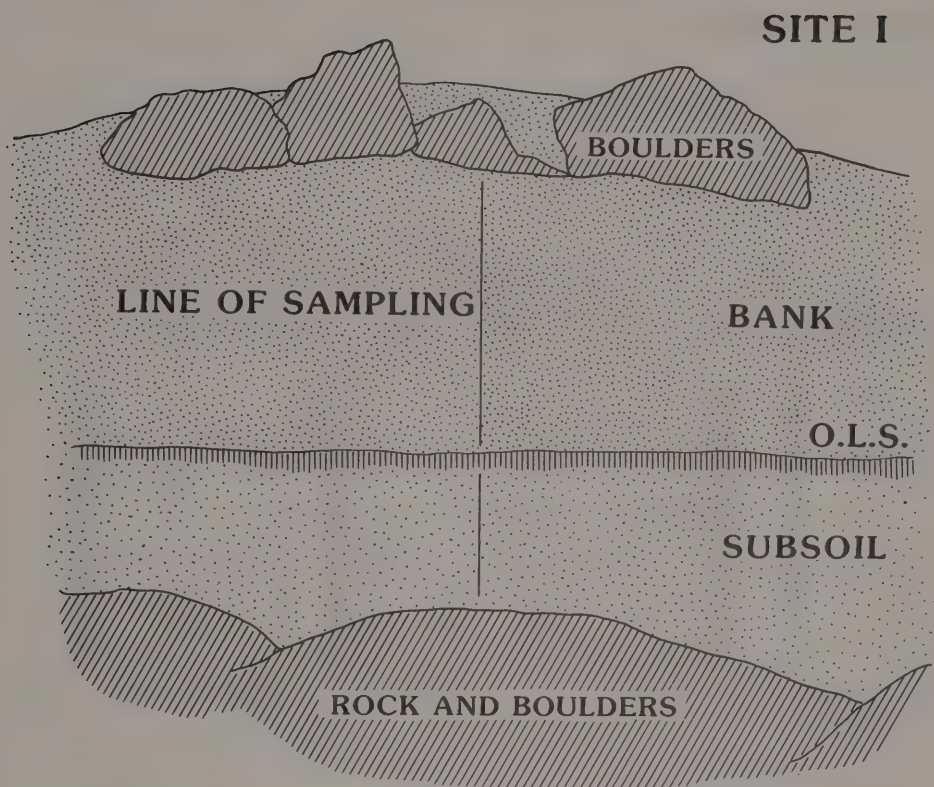
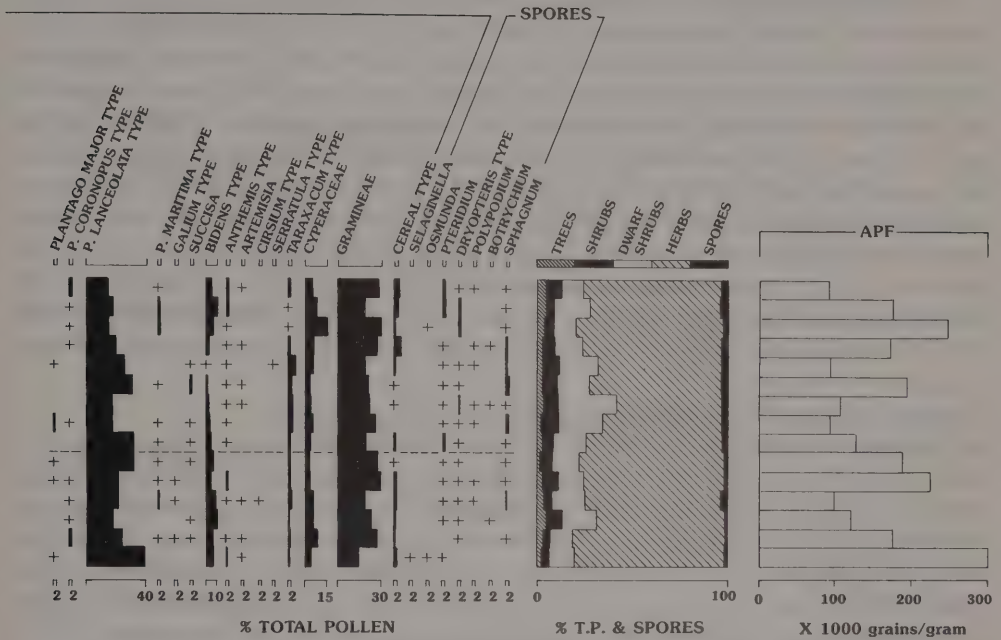


Fig. 4. Soil Section Site I

It is instructive to compare this pollen assemblage with the uppermost samples of the peat profile (pollen zone IO:5), which came from the basin site *c.* 500m to the south-west. It has to be remembered that the percentages in the peat analyses are based on a total that includes a major element of pollen of wetland taxa, which is not the case in the soil analysis. This means that, if one could make calculations based on the terrestrial pollen only, all percentages would be increased. Unfortunately such a correction is not possible as no hard and fast distinction can be made between many pollens of aquatic and terrestrial origin. The family Gramineae, for example, contains not only wetland grasses but also taxa which are characteristic of dry grassland. Other families such as Compositae and Ranunculaceae similarly embrace a range of habitats; in fact the question arises as to whether the increase in *Ranunculus*-type pollen in the uppermost peat samples is due to terrestrial species, aquatics, or species of wet ground such as *R. flammula*. In damp valleys on Iona today there are 'buttercup meadows' which in June are



component) in the peat. It seems likely that we are seeing here a reflection of local vegetation, of *Betula* in the vicinity of the peat basin and of *Plantago* in an agricultural field. For as complete a picture as possible of the local vegetation pattern, we need spectra not only from peaty basin sites but also from dry-land sites, particularly where these can be dated archaeologically or by documentation. It may be noted that, because this was a mixed soil, the Site I buried soil did not lend itself to giving any indication of vegetation change. One would, however, expect that some of the other profiles (*e.g.* those mentioned in Appendix a) could be a source of sequential evidence and which it is hoped will be analysed in the future.

It was shown above that there is reasonable correspondence between the spectrum from Site G and that at 8cm in the peat core. Whilst acknowledging that with sampling at 4cm intervals there can be no precision about the depth, it is interesting that if we follow the procedure used with the Columban level and extrapolate the date from the peat depth/age graph in Figure 3, this gives a date for the 8cm level of 850 BP, or 12th century AD. We must not press this further than the data allow, but it may shed some light on the unknown ages of some of the field banks.

In future work, greater co-ordination of spectra from buried levels with peat cores sampled at even closer intervals might yield some interesting and unexpected results.

Finally, some further conclusions can be drawn about the soil itself. Though no pedological analyses have yet been carried out on this buried soil, the details given above give us some indications of its character. It was a dark brown soil with no obvious horizonation, though there was a trace of an irregular bleached layer, and veins of iron staining which were considered to have developed after burial. It was probably a cultivated incipient podzol. The fact that it was rich in pollen of agricultural weeds tells us two things about it: a) that it was fertile enough to carry such a flora, and b) that it was acid enough to preserve the pollen. In general good pollen preservation requires a soil reaction (acidity) of pH 4.5 or less, that is moderately acid. At a pH around this figure these two requirements could be met. The area today is under moorland and could not possibly support the group of species indicated by the pollen, but this may not be a valid comparison. As already stated the site is on a steep slope and once cultivation ceased erosion could have removed the cultivated soil, the only remnant preserved being under the field bank.

Summary of Changes in Land Use

The investigation so far has concentrated on the northern part of the island, around and to the west of the Abbey. Apart from the coastal strip, on which the Abbey stands and which is intensively farmed today, most of this area is moorland. It is divided up today by well maintained wire fences, showing that it is currently used for grazing. In view of the apparently poor quality of the land today it comes as a surprise to find the area criss-crossed by old field or boundary banks, now in disuse but standing out clearly; it is even more surprising to find that the soils beneath these may be rich in pollen of agricultural systems, both arable and pastoral.

From the long peat profile we now have a complete record of the vegetation changes in Iona (at least in the vicinity of the settlement site) through the whole of the Postglacial. Scaife has dealt with the sequences which occurred through the first 5000 years of this period, before agriculture came to Iona; here we attempt to summarise the last 5000 years. It had been thought that there was no land use of any consequence on Iona before Columba's time. Balaam (in Reece 1981) refers to the Iron Age settlement on Dun Bhuirg as the only prehistoric site on the island and dismisses it as a centre for farming activities. He makes no mention of the barrow, (Site T) probably late Neolithic or Bronze Age date, in the farmyard adjacent to the St Columba's Hotel (see Argyll Survey Vol. IV).

The peat profile at once tells us one crucial fact - that agriculture has been practised on Iona since about 5000 BP and that the pressure on the land has been continuous and unremitting. There is no indication of a period of abandonment and a return to wilderness.

Until agriculture arrived, Iona was wooded but not forested, with *Corylus* and *Betula* as the primary woody species. There was also a major element of heathland or moorland, probably on the higher ground and slopes, dominated by *Calluna* and other Ericaceae. The first impact of agriculture was twofold: a sudden and dramatic decrease of heath species and their replacement by Gramineae and other agricultural weeds. Cereals appeared at this time, but the very high values for *Plantago lanceolata* suggest that pastoralism was the primary agricultural

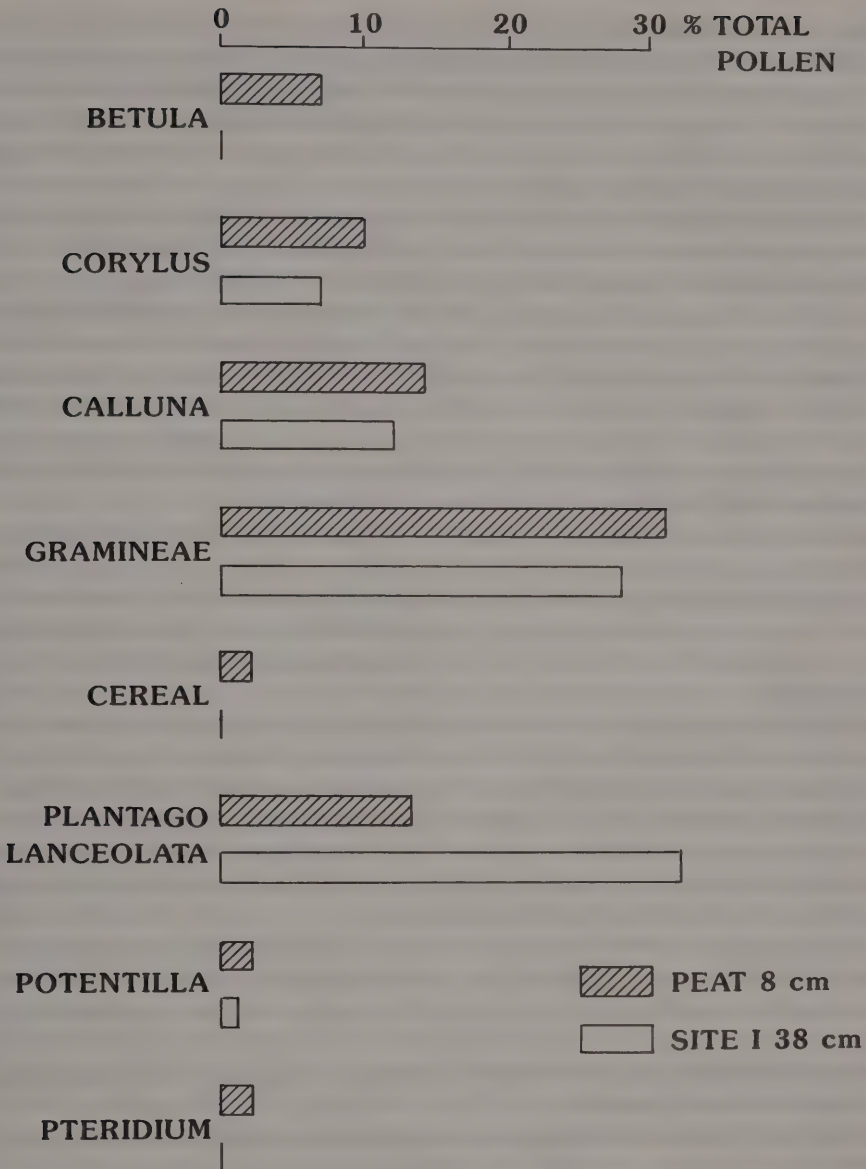


Fig. 6. Comparison Between Pollen Spectra at Site I and Peast from Site G

practice. Since the initial virtual elimination of heath plants there has been a gradual re-establishment of *Calluna* and its associates, reaching a peak at the 16cm depth (Site G), which we have reason to believe is approximately coeval with the Columban settlement and declining somewhat since. This gradual return of heath could be the result of several factors; for instance, changes in grazing pressure, or induced soil acidification in soils with low base-exchange capacity, particularly if fire was regularly used.

The second impact of agriculture was on the woody species, especially *Corylus*, which was reduced from dominance to virtual extinction today. This trend has been widespread in poor soils throughout Britain. The most likely explanation of this is through animal grazing, not only destroying the existing plants but preventing their regeneration. A particularly damaging impact could have been brought about by leaving stock out during the winter, which was done where good pasture was not to be had in the valleys for winter feeding. This may well have been the case on Iona. In these circumstances the animals would be short of leafy fodder in the winter and would then attack the stems, stripping them of bark to get at the nutritious tissues beneath, so killing the plants. In Iceland native birch has been extensively destroyed by sheep which were kept outdoors during the winter when the trees were leafless.

These are the long-term trends, and it cannot be said that the peat profile shows any features which point to a marked change at the time of Columba's arrival. This is hardly surprising because agricultural practices familiar to a contemporary man from Ireland would probably be much the same as those that were already being practised on Iona. Nor could one expect a population of one boat-load of men to have a marked effect on the intensity of those practices on the landscape.

Thus, the peat analyses give us a broad background; the only detail associated with Columba must come from the buried soils under the vallum. In his attempt to interpret the pollen analyses from the buried soils, Balaam (in Reece 1981) admitted that it was difficult to do this not knowing what the preceding plant communities were. Assuming that our peat profile gives a broad outline that can be applied to the vallum site, we now have more evidence to go on. Without distinguishing between the two series, which differed in detail rather than substance, Balaams' diagrams may be understood in the following terms:

1. The deeper parts of the (truncated) buried soil and the subsoil of the inverted turf are dominated by Gramineae. At these levels, tree pollen occurs as the merest trace. Therefore, the whole profile falls within the agricultural phase of the postglacial sequence (perhaps only in the upper part of it).
2. Frequencies of *Plantago lanceolata* are decreasing from higher values, suggesting that grazing pressure is being relaxed.
3. The absence of cereal pollen argues against arable land use. Arable weeds are absent from the buried turf.

4. Though *Calluna*, Gramineae and *Corylus* form higher percentages in the turf, ecologically they could not exist together. *Calluna* and Gramineae need full light to flower, so they could not be growing in the shade of shrubs. This indicates a mosaic of vegetation.

5. Changes in the pattern of plant communities.

a) *Corylus* : shows a massive increase from low values. The peat profile showed that *Corylus* was being progressively reduced in the landscape. The high values from this vallum suggest a reduction of grazing and browsing in the vicinity of the vallum. It should also be borne in mind that the *Corylus* might be deliberately fostered for other reasons; it is a useful food plant and it can provide shelter, e.g. in the form of hedges. The possibility has already been mentioned that the old field banks may have had hedges already.

b) *Calluna* : the balance between *Calluna* and Gramineae may be controlled by grazing pressure, heavier grazing favouring the Gramineae. (As this soil was not markedly podzolised it is not considered likely that the spread of *Calluna* at this point was due to an increase in soil acidity.)

c) Gramineae : though the Gramineae pollen percentages are high in the turf, the frequency curves show that there is no marked increase in the deposition of this pollen type, particularly as seen in the more complete Series 1. This contrasts with the strong increase of frequencies for *Calluna*.

d) *Pteridium* : the high values for *Pteridium* seen in Series 2 may also be associated with a reduction of grazing pressure and trampling.

All in all, therefore, the pollen seems to indicate that at the vallum site agricultural pressure was reduced. Grazing intensity was less and there was no evidence that arable farming was taking place there. The fact that both soil profiles were truncated and that a major earthwork had been constructed there seems to point to a non-agricultural use of the land at this point.

Land use not only brings about changes in the vegetation but also in the soils. The solid geology of Iona consists of metamorphosed rocks, mostly of low base status, though locally there are outcrops of more base-rich rocks. Where there is shell-sand, whether in situ as in the machair, or blown inland, the soils are base-rich and fertile, even where there are acidic soils underlying the blown sand, as at Site A in Area II. For the rest, apart from the eastern coastal strip, the vegetation is moorland and the soils markedly podzolic. As such soils are acid and of low productivity, one asks why over both Areas I and III there are traces of old land use in the form of field banks.

It has already been considered that at Site I cultivation was taking place successfully in an incipient, moderately acid, podzol. This cannot be regarded as the original condition of the soil. If our indirect dating of the field bank to the medieval period is correct - and it seems it must postdate the Columban settlement - it is late in the long history of anthropogenic impact on the land. At the moment we can only speculate what the soil conditions were at 5000 BC. However, there would be parallels elsewhere for believing that before that date the soils were acidic brown earths of moderate fertility, and that the removal of trees, the grazing of stock and the use of fire

all acting in the same direction have resulted in the acid moorland which covers so much of Areas I and III today. It could be a major aim of future work to identify and investigate key sites (*e.g.* the barrow at Site T in Area I) which could turn this speculation into a plausible theory.

Strategy for Future Work

Looking at the island as a whole there can be little doubt that at the time of Columba the land most likely to be farmed would be as now, namely the narrow waist of the island and the coastal plain of the north and north east coasts. These areas offer little in the way of study material for our purpose as they are so intensively worked. There are some well-maintained field banks, which could be built on old foundations, but excavation of these would hardly be welcomed. However, the peat site at Area II Site I is adjacent to this fertile belt and deserves palaeobotanical study.

The key to land use and land pressure probably lies in the areas of grazing in the north and south of the island (Areas I and III). The presence of old field banks and walls in these areas implies a different type of land use from that of today. Assuming that they represented boundaries between pastures, and not arable, they were presumably set up in connection with cattle grazing rather than the free-running sheep grazing of today. There are probably documentary data which relate to this point. It was noted above that lazybeds existed on the slopes of Dun I.

Certainly this land today is ecologically run down, the result of intensive sheep grazing. We could not tell from observation alone to what extent fire is used to improve the grazing; probably not a great deal as the vegetation is not dominated by heather and what there is does not show the uniformity of age and structure associated with moor burning. Pollen analyses should be able to establish the degree of woodland cover in earlier times. Acid woodland communities, including such plants as the great wood-rush (*Luzula sylvatica*) and honeysuckle (*Lonicera periclymenum*), are to be found today in craggy places which the sheep cannot reach. One specimen of oak was seen (GWD); it had a completely prostrate habit. It is to be expected that other woody species such as birch and hazel would have been commoner than they are today. Apart from grazing, the demand for fuel would hit such species. The Lochan Mor, a source of turves in more recent times, was open water in the early days of the monastery; if wood were available it would be preferred to hauling turves from more remote peat bogs. All in all, therefore, it is this type of land, which is marginal for agriculture, that will have experienced the greatest variation in ecological impact as a whole. Therefore, it is this marginal land that is likely to provide the most significant results of palaeobotanical study.

In Area III the settlements in the vicinity of Columba's Bay are in a basin of fertile land which is more or less isolated from the agricultural areas by infertile higher ground, though the presence of field walls (Site B) shows that here too, the marginal land has been subjected to different land use in the past. Nevertheless, it seems wisest to consider this enclave as self-contained. It has its own small basins of peat (Sites D, E and F), together with lazybeds (Site

G) of the most recent period of occupation, which apparently came to an end in the 19th century, and so its study could be a self-contained project. We would not expect, however, that changes here would be matched or reflected in changes in other parts of the island.

If this line of reasoning is correct, we would suggest the following programmes of work.

1. Peat cores as basic reference.

(a) A core from the Loch Staoineig peat deposit, avoiding areas of obvious turf-cutting. One has been taken and analysis has been started (RGS).

(b) Cores from Area I. Depending on time available, cores from different parts of the area would reflect the influence of different adjacent ecological/agricultural zones *e.g.* Sites I.F, I.H, and I.S.

(c) A core from Area II, Site I machair/agricultural belt.

All of these cores should be sampled in close intervals in the layers dating to the historic period.

2. Buried old land surfaces.

As each site only requires one sample, a number of sites could be examined with a minimum of laboratory work.

(a) A selection of OLS beneath substantial field banks over Area I.

(b) If permission can be obtained, the OLS beneath the Bronze Age cairn (Area I, Site T) and the Hermit Cell would give two chronologically fixed points, one pre-Columban and one post-Columban.

(c) If pollen is proved in the test samples of OLS shell sand, sequence at Area II Site G, these should be investigated. Again relatively few samples would be necessary, though the investigation could profitably be extended to include not only pollen but also land molluscs and perhaps even phytoliths (microscopic opaline bodies laid down in the leaves of grasses).

3. Buried soil profiles.

The profile beneath shell sand at Area II Site A is a priority for serial pollen analysis. It might involve 20 samples; however, pollen counting might be lengthy and tedious because of the low frequency and imperfect preservation.

The fact that buried soils of various ages are available offers exceptional opportunities for research on soil changes associated with human impact on the landscape. The two sites in Area I reported in this paper show the possibilities, and other sites with potential are certainly available. In order to make the most of the opportunities more peat cores are needed and these should be sampled at close intervals in the zones covering the last 5000 years.

It would also be desirable to include some of the deeper modern soil profiles (ie soils which are not buried) at strategic points over those parts of the island with acidic rocks.

We would suggest leaving the Columba's Bay area (Area III) as a self-contained project which could be taken up later as and when facilities are available. It has considerable potential, but its environment could bear little relationship to the questions being asked about Area I. For one thing, there has been settlement there until the last century and there seems to have been no subsequent development, apart from the use of the land for rough grazing.

Acknowledgements

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Appendices

Appendix A. Catalogue of sites from preliminary survey

Area I (Dub I, Cnoc Fada, Cnoc Mor)

- A. *Eriophorum* bog (not visited)
- B. Ditto.
- C. Hermit Cell
- D. Basin peat > 0.7m deep
- E. Old lazybeds
- F. Basin peats > 0.7m deep
- G. Ditto.
- H. Ditto.
- I. Soil profile buried beneath field bank
- J. Soil profile in sheep scrape, showing stone line
- K. Broken field bank, possible source of buried soil
- L. Peat base exposed in collapsed stream bank
- M. Basin peat > 0.7m deep
- N. Ditto.
- O. Ditto.
- P. Buried soil beneath field bank at edge of Iris bed
- Q. Lochan Mor
- R. Buried soil beneath bank of ditch
- S. Basin peat at high altitude, > 0.7m deep
- T. Cairn Bronze Age/late Neolithic

Area II Machair, Blown Sheel Sand)

- A. Basal podzol exposed beneath shell sand in stream bank
- B. Old stone wall built on shell sand foundation
- C. Stream sump in shell sand; multiple humus layers in blown sand
- D. Possible basal soil beneath cover of shell sand in stream section
- E. Ridge-and-furrow in machair
- F. Buried soil in shell sand; not basal, parent material shell sand
- G. Multiple strongly-developed OLS exposed in stream-cut ravine
- H. Further up same ravine, sloughed peat underlying shell sand
- I. Peat bog at head of ravine, peat > 0.7m deep

Area III (Loch Staoineig, Columba's Bay)

- A. Deep peat (> 0.7m) all around Loch Staoineig. Parts probably cut for turf
- B. Stone field boundary walls
- C. House platforms at Lathraichean

- D. Basin of peat > 0.7m just above platforms
- E. Peat bog on saddle, > 0.7m deep
- F. Peat bog in stream courses just above Columba's Bay
- G. Disused lazybeds in good condition
- H. Old walls near shore built on shell sand
- I. House platforms above influence of shell sand; *Pteridium*-covered

Appendix B. Results of preliminary pollen samples

i. List of samples and their provenance

Sample No	Provenance
46.	Area I, Site R
47.	Area I, Site I
48.	Area I, Site L
49.	Area I, Site P
50.	Area II, Site C, upper OLS
51.	Area II, Site C, lower OLS
52.	Area II, Site C, modern surface
53.	Area II, Site A, just above B horizon
54.	Area II, Site A, below shell sand junction
55.	Area II, Site A, above shell sand junction
56.	Area II, Site G, strong OLS
57.	Area II, Site H, sloughed peat
58.	Area II, Site I, peat at 0.7m

No samples were collected from Area III.

ii. Notes on preliminary pollen analyses

The samples taken fall broadly into two categories: buried humus layers or peats: and soils associated with shell-sand.

Without exception the buried humus layers and peats provided suitable material for pollen analysis, some being very rich in a great variety of pollen types. Even beneath a humic field bank (Area I.I) preservation was good and the pollen was clearly not all derived from the present surface of the bank. Undoubtedly samples from such sites can be used to investigate earlier vegetation cover, though as explained in the report, they are not in themselves datable. They could, however, be cross-linked into peat profiles, which exist in the moorland areas of the island. Only two peat samples were included in this preliminary sampling (Area II, H and I) and both were rich in pollen.

As expected, the samples associated with shell-sand are poor in pollen. Even so, in most cases counts could probably be obtained. There must be some question whether the pollen present in these low numbers is subject to differential decomposition and therefore biased towards resistant types.

The paucity of pollen in the basal soil, (Area II, A) is a disappointment. It was hoped that the buried profile would have its own pollen suite, but it appears that what pollen there is may be derived from the overlying shell-sand. It seems likely that the original pollen content has been destroyed as the result of the higher pH produced by the shell-sand cover. However, further field work may reveal a basal soil less influenced by calcareous sand. This could be investigated by pH determinations rather than by the tests for carbonate that were used in this survey.

Results:

Sample No.

- 46 Rich in well-preserved pollen. Over 30 taxa identified, including trees, aquatics and agricultural element (with cereal).
- 47 Very rich in well-preserved pollen. Strong agricultural element, mixed with heath taxa. Contrasts strongly with present-day vegetation.
- 48 *Sphagnum* spores dominant, but 20 pollen taxa recognized. Pollen in good condition. Some tree pollen present; also agricultural element, including cereal.
- 49 Pollen not abundant but countable. 16 taxa identified, ecologically diverse.
- 50 Not yet processed.
- 51 Pollen sparse; shows similar diversity to sample 52.
- 52 Modern surface. Pollen sparse, but gave quite a long list. More species variation than in the machair vegetation itself.
- 53 Pollen sparse but countable, similar to sample 55.
- 54 Pollen sparse and poorly preserved. Spectrum similar to samples 53 and 55. It seems likely that most of the pollen is derived by downwash or mixing from the shell sand cover. No indication of pollen associated with the podzol itself.
- 55 Pollen sparse but countable. Agricultural.
56. Pollen sparse but countable. About a dozen taxa identified. Mixture of heath and agricultural elements. As this is one of a series of superimposed OLS it suggests that a comparative study through the series would be feasible.
- 57 Rich in pollen. Bog/fen/heath. No marked agricultural element.
- 58 Rich in pollen. More *Betula* than in any other sample.

Appendix C. Key to plant names

Alisma plantago-aquatica - water plantain

Alnus - alder

Betula - birch

Betula nana - dwarf birch

Calluna - heather (ling)

Cerealia - cereals

Corylus - hazel

Empetrum - crowberry

- Equisetum* - horsetail ferns
Ericaceae - heath family
Eriophorum - cotton grass
Filipendula - meadow sweet
Gramineae - grass family
Fraxinus - ash
Juniperus - juniper
Lonicera - honeysuckle
Luzula - rush
Lycopodium - clubmoss ferns
Menyanthes - bogbean
Myrica - sweet gale
Myriophyllum - water milfoil
Osmunda regalis - royal fern
Pinus - pine
Plantago - plantain
Plantago lanceolata - ribwort plantain
Plantago maritima - sea plantain
Potamogeton - pondweeds
Potentilla - cinquefoil
Pteridium - bracken
Quercus - oak
Ranunculaceae - buttercup family
Ranunculus flammula - lesser spearwort
Salix - willow
Sorbus type - rowan and whitebeam (here likely rowan)
Sparganium - bur reeds
Sphagnum - bog moss
Taraxacum type - dandelion, sow-thistles, hawkbits
Typha angustifolia - reedmace
Ulmus - elm

Dynamics of Cultural Change in Neolithic Communities: an Armorican Case-study

by MARK PATTON†

The archaeological literature of the 1960's and 70's is filled with optimistic statements concerning the recognition of processes of socio-cultural change. "Culture History" was out, and "Culture Process" became the rallying cry of the New Archaeology (cf Binford 1962, 1965). The aims of archaeology were redefined, placing greater emphasis on explanation, and on the elucidation of long term processes in human history and prehistory (cf Renfrew ed. 1973). The models that were developed in the context of the "Processual" approach have been separated into two categories, characterised by Flannery (1972) as "ecological" (cf Binford 1968, Flannery 1968) and "humanist" or sociological (cf Renfrew 1972, Friedman & Rowlands 1977, Frankenstein & Rowlands 1978). Whilst there are important conceptual differences among these models, the majority of them share an evolutionary perspective, reflecting trends in contemporary American anthropology (cf Steward 1955, Service 1962, 1971, Sahlins 1963). This perspective involves an assumption that socio-cultural change is directional, that societies naturally evolve from "simple" to "complex" forms: from "bands" to "tribes" and to "chiefdoms" and "states". Different mechanisms were proposed to account for this evolutionary process, but the process itself was rarely questioned. More recently, however, the whole idea of "social evolution" has been criticised in the archaeological and anthropological literature (Rowlands 1989), and the optimism expressed in the 1960's and 70's has given way to an embarrassed silence.

The influence of Structuralism on archaeological theory (Hodder ed, 1982) has contributed to a shift in emphasis from diachronic (processual aspects of prehistoric society) to synchronic (structural) aspects, and whilst the post-Structuralist concerns with symbolism and ideology have been incorporated in regional case-studies of cultural change (cf Miller & Tilley eds. 1984), there have been few attempts to integrate these concerns in more general models of socio-cultural change. The recent emphasis on Critical Theory in archaeology (cf Shanks & Tilley 1987a, b) has resulted in a degree of introspection, with the focus increasingly on the socio-political context of archaeological explanation in the present, rather than on processes of social change in the past.

The Critical Theorists have made an important contribution in stressing that scientific practice, like other forms of human action, exists in a given social context, and Critical Theory has also contributed significantly to the de-bunking of some of the ideological myths which underlie *a priori* notions of social evolution. If "social evolution", with its progressivist assumptions, is increasingly recognised as an outdated concept, however, social change should

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remain firmly on the archaeological agenda. Levi-Strauss' (1955) categorisation of "hot" and "cold" societies (societies which have history and those which do not) will not stand up to archaeological scrutiny: whilst an informant may tell you that his or her society is unchanging, the long term perspective of the archaeologist will almost invariably tell you otherwise. This long term perspective is perhaps the most significant contribution that archaeology can make to the broader discipline of anthropology. If human societies are by nature dynamic, then processes of socio-cultural change must remain a central concern of anthropology in general, and archaeology in particular. It is, therefore, fundamentally misleading to talk in terms of "post-processual" archaeology. In using terms such as "post-processual", "post-Structuralist", "post-positivist" etc. we imply a conceptual *dépassement*, asserting that we have moved beyond the confines of a particular approach, incorporating elements of it in a new synthesis. The archaeology of the 1980's may well have moved beyond the confines of the "New Archaeology", with its evolutionary assumptions and logical positivist epistemology, and may qualify as post-Positivist and post-Structuralist. We cannot, however, claim to have moved beyond the concern with processes of socio-cultural change, which is necessarily a fundamental concern of archaeology.

To reject the "post-processual" label is not to deny the significance of developments in archaeological theory over the past two decades. Archaeology is a good deal less naïve than it was in the early 1960's: few would now accept uncritically the simplistic evolutionism and ecological determinism which underlies many of the early "processual" models. The post-Structuralist emphasis on symbolism, ideology and cultural meaning, far from invalidating a processual approach, may contribute to the development of more sophisticated processual models.

The aim of this paper is to develop a dialectical model of socio-cultural change in prehistoric societies. The "epigenetic" model of Friedman & Rowlands (1977) will be taken as a starting point: this model, as we shall see, has many of the shortcomings of the social evolutionary approach, but it is nonetheless a useful starting point, since it is one of the few general models that deals explicitly with the mechanisms of cultural change from a social point of view. Having briefly summarised the Friedman & Rowlands model, we will look at a case-study of socio-cultural change in the Neolithic of north-western France, and the evidence outlined in the case-study will form the basis for more general discussion.

The Epigenetic Model

Friedman & Rowlands (1977) are concerned to develop an "epigenetic model for the evolution of civilisations". Epigenesis is the principle that the development of a given social formation can be understood in relation to structural features of the configuration which historically precedes it. The approach, therefore, is diachronic and explicitly historicist. The model developed by Friedman & Rowlands covers the "evolution" of "tribal" societies through "chiefdoms" to "states". The "tribal" social formation is characterised as a system of competing descent-based lineages. Inter-lineage competition is mediated through communal feasting, often in a ceremonial context. The ability to produce a large agricultural surplus and sponsor

a lavish feast is taken as an indication of supernatural patronage, which in turn is taken to suggest a close genealogical proximity to a founding ancestor or spirit. This supposed proximity endows members of a successful lineage with special status, which may ultimately involve control of initiation rites and mediation between the community and the spirit world ("control of the imaginary conditions of production"). Women from such a group become desirable as marriage partners, as men from other lineages seek to marry into the "direct" line. If marriage arrangements involve bridewealth, the "direct" lineage may demand higher payments than other groups, and the valuables obtained can be used to acquire more women from other lineages in the context of polygynous marriages. This increases the size of the labour pool within the "direct" lineage, and may permit the production of an even greater surplus, thus escalating the degree of inter-lineage differentiation. This process of increasing social differentiation may lead to the emergence of powerful chiefly castes, whose power expands through a developing system of alliance and patronage. Prestige items are produced by specialist craftsmen working under the patronage of the dominant group. Smaller scale local elites appropriate surplus agricultural produce from their own communities, which they give as tribute to the paramount chief (the leader of the dominant group), receiving prestige items in return. Paramount chiefs in adjacent territories may be in competition, and the allegiance of the smaller scale elites may switch from one chief to another. Those chiefs who are able to make the most lavish presentations of prestige items gain a larger number of clients and thus collect more tribute, which is used to sponsor increasingly lavish presentations. Some chiefs, therefore, will gain in power and status at the expense of others, giving rise to a process of centralisation which may ultimately lead to the development of the state.

The model presented by Friedman & Rowlands is essentially linear: societies are considered to evolve from relatively simple "tribal" configurations, with minimal social differentiation, to highly complex chiefdoms and ultimately state societies. This evolutionary process is considered to be a continuous one. Each phase in the evolutionary sequence represents a consolidation and expansion of previous power structures: the dominant lineage in the tribal formation becomes the chiefly caste, which in turn becomes the ruling class of the early state. As we have already seen, the whole notion of "progress" in social evolution has been widely criticised in recent literature. One of the authors of the epigenetic model (Rowlands 1989) has gone so far as to suggest that:

"The assumption that complexity is to be measured in terms of increasing differentiation and specialisation ... is part of a dominant ideology favouring the modernising ethos and the dominance of the West".

This is not to deny that social change may involve increasing differentiation and specialisation: what is called into question is the *a priori* assumption of a built-in evolutionary trajectory. In the case-study which follows, we shall see that the reality is in some respects more complex than the general model might suggest.



Fig. 1. The Armorican Massif.

Social Dynamics and Cultural Change in the Neolithic of North-Western France

The north-western part of France is formed by the Armorican massif, an area of predominantly hard igneous and metamorphic rocks which includes most of Brittany, the Cotentin peninsula of Normandy, and the Channel Islands (Fig. 1). Archaeologically the area is best known for its important concentration of megalithic monuments (Daniel 1960, L'Helgouac'h 1965, Giot *et al.* 1979). These monuments cover a period of over 200 years, from the Earliest Neolithic (*c.* 4800 cal BC) to the beginning of the Bronze Age (*c.* 2250 cal BC), and the chronology of the monuments is relatively well understood, thanks to the work of Giot, L'Helgouac'h and others.

The origins of the monumental traditions of Brittany can perhaps be traced back to the Late Mesolithic. The 6th millennium BC was marked by the appearance of large coastal settlements in Southern Brittany, and at Tevieg (Pequart *et al.* 1937) and Hoedic (Pequart & Pequart 1954) burials were found in association with coastal settlements. The nature of these burials suggests complex mortuary practices and a degree of social differentiation: many of the burials are in cist graves, and some are distinguished by arrangements of antlers placed over the body or around the head.

The introduction of farming in southern Brittany in the mid 5th millennium BC coincided with the appearance of a distinctive monumental complex, characterised by long mounds ("tertres tumulaires") and massive standing stones. Recent excavations at Locmariaquer, Morbihan (L'Helgouac'h & Cassen in press) have revealed traces of an early ritual complex sealed beneath the cairn of the Table des Marchand passage grave. This complex consisted of a series of carved menhirs including the *Grand Menhir Brisé*, at 22 metres the largest known menhir in Europe. Only one of the Locmariaquer menhirs is still standing, and this has been incorporated as the end stone of the Table des Marchand passage grave. The other menhirs seem to have been deliberately broken in prehistory, and incorporated in the construction of later monuments. The stone which covers the chamber of the Table des Marchand passage grave is a fragment of one such stone: conjoining fragments from the same carved menhir have been identified (Le Roux 1984) as capstones on the monuments of Er Grah (adjacent to La Table des Marchand) and Gavrinis (4 km away). Fragments of decorated menhirs have also been identified as capstones on the passage grave of Mane-Rutual, less than 1 km from La Table des Marchand (L'Helgouac'h 1983), and it seems likely that these menhirs also formed part of the Locmariaquer complex. The carved motifs on the Locmariaquer menhirs (Fig. 2) are predominantly naturalistic and include representations of hafted axes, bovids, "shepherds' crooks", "axe-ploughs," and a stylised anthropomorph. A pottery vessel, found in the pre-cairn horizon at La Table des Marchand (L'Helgouac'h & Cassen in press), is decorated with "crook" motifs identical to those carved on the Locmariaquer menhirs. The range of motifs, as Bradley (1989) has stressed, is "peculiarly appropriate to the new (agricultural) mode of production". The development of a new mode of production may be linked to social transformations: in particular, as Meillassoux (1967) has argued, the labour involved in clearance and cultivation may favour the development of a hierarchy between "those who come before" (the ancestors and elders) and those who come after".

Meillassoux stresses the establishment and maintenance of inter-generational hierarchies through control of initiation ceremonies, which may be mediated both through control of ritual knowledge and through control over the circulation of material items required in socially significant transactions (e.g. to pay for initiation ceremonies, bridewealth transactions etc.). The mid 5th millennium BC in Brittany was marked both by the proliferation of megaliths and by the development of extensive networks of stone axe exchange (Le Roux 1979), which can perhaps be understood in this context. A clear link can be established (Patton in press) between stone axe exchange and megalithic ritual: the axe is one of the most prominent symbols in Armorican megalithic art (Shee-Twohig 1981), and the megalithic stone circles of Er Lannic (Le Rouzic 1930) seem to have served as a production and distribution centre for fibrolite axes.

The carved menhirs of Locmariaquer are by no means typical of Early Neolithic monuments in the Armorican area as a whole, though large carved menhirs are known elsewhere, as at Kermarquer, Morbihan (L'Helgouac'h & Lecornec 1969), Saint-Denec, Finistère, and Saint-Sampson-sur-Rance, Côtes-du-Nord (Bender 1986). The chronology of the carved menhirs is

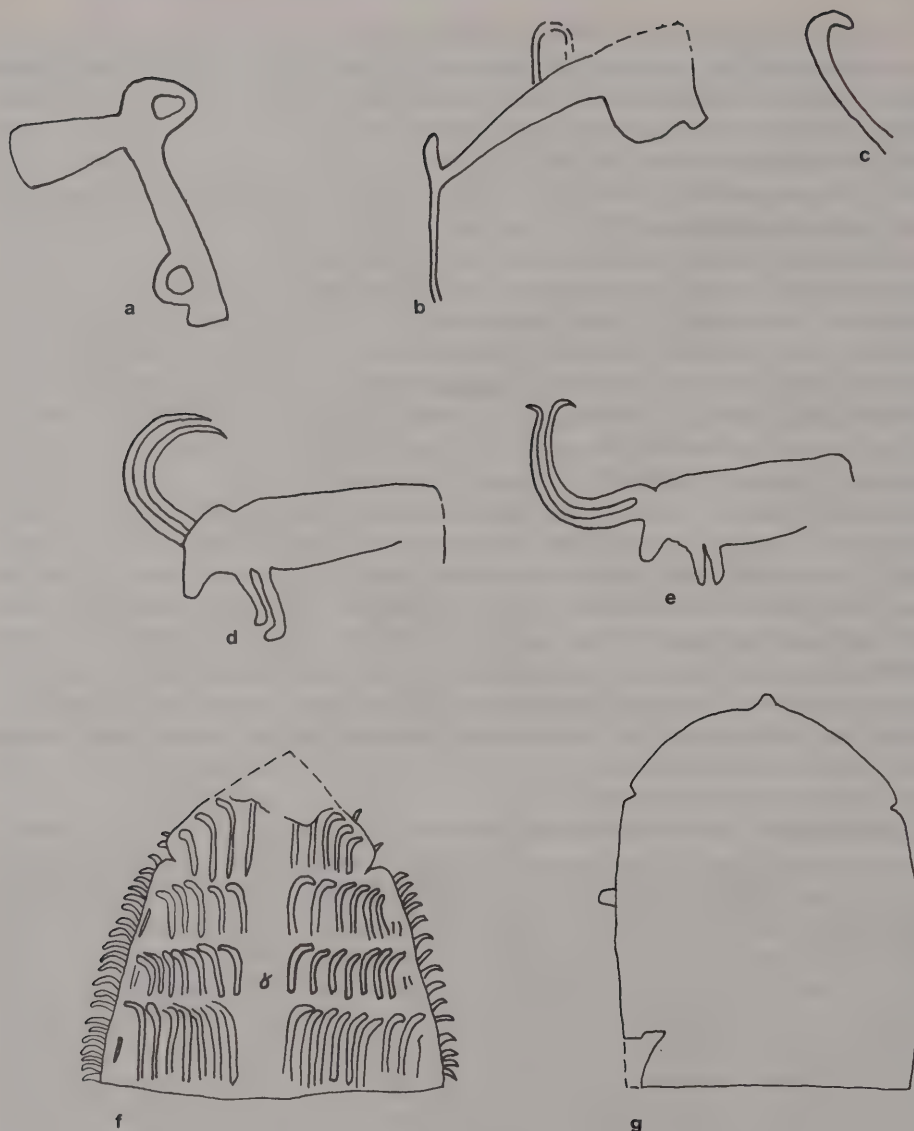


Fig. 2. Carved motifs on the Locmariaquer menhirs. a: hafted axe (Table des Marchand); b: "axe-plough" (Gavrinis); c: "crook" (Table des Marchand); d-e: bovids (Gavrinis); f: "anthropomorph" with "crooks" (Table des Marchand); g: "anthropomorph" (Mane-Rutual).

uncertain, but in southern Brittany they apparently pre-date the passage graves. Charcoal from hearths in the pre-cairn horizon at La Table des Marchand (L'Helgouac'h & Cassen in press) has given two radiocarbon dates:

$3090 \pm 70 \text{ bc} = 3730 - 3960 \text{ cal BC (Gif - 7555)}$

$3220 \pm 70 \text{ bc} = 3820 - 4020 \text{ cal BC (Gif - 7554)}$.

These dates clearly overlap with those from early passage graves elsewhere in Brittany. The earliest passage graves in north-western Brittany have been dated to the mid 5th millennium BC (Giot 1987):

Barnenez G; $3800 \pm \text{bc} = 4460 - 4790 \text{ cal BC (Gif - 1309)}$

Ile Guennoc IIIc; $3850 \pm 300 \text{ bc} = 4360 - 5010 \text{ cal BC (Gif - 165)}$.

Early in the 4th millennium cal BC, the carved menhirs of Locmariaquer were pulled down, and the fragments incorporated in the construction of passage graves. In at least two cases in southern Brittany (La Table des Marchand and Le Petit Mont), passage graves were built on top of the earlier ritual complexes (L'Helgouac'h & Cassen in press, Lecornec in press). Some of the passage graves are decorated with carved motifs (Shee-Twohig 1981), and in many cases these are the same basic motifs as those found on the carved menhirs. Whilst the evidence suggests a degree of continuity in ritual practice, it also represents an important transformation. The symbols which had previously been carved on massive standing stones in open ritual complexes were now taken into dark chambers, separated from the outside world by passages and covered by massive cairns. The organisation of space in the passage graves suggests restriction of access (Fig. 3). The chambers themselves are relatively small, and only a few people could have participated in the ceremonies held within them. The cairn and narrow passage would effectively have hidden these ceremonies from the view of people standing outside the monument. Bradley (1989) has stressed that many of the carved motifs in the passage graves are in parts of the monument hidden from the light and Shee-Twohig (1981) argues that the motifs themselves became increasingly stylised: symbols which had been clearly visible and whose meaning had been self-evident became accessible only to the initiated. Skeletal remains are rarely found in Armorican passage graves, since the soils in this area are predominantly acidic and do not favour the preservation of bone. Where human remains have been found, as at Le Déhus, Guernsey (Kendrick 1928) and La Hougue Bie, Le Mont Ubé, Faldouet, and Grantez, Jersey (Hawkes 1937), the number of individuals represented is generally very small (1-10). Only a few people were given access to the monuments in death, and it seems reasonable to suggest that this was linked to restricted access during life.

The structure of the passage graves and the nature of the carvings and depositions found within them suggest that participation in ritual and access to ritual knowledge became increasingly restricted. Whilst this clearly suggests increasing social differentiation, it could be seen simply as evidence for an intensification of the inter-generational asymmetries already discussed. The Friedman & Rowlands model would lead us to expect evidence for inter-communal as well as intra-communal hierarchy. There is, in fact, some evidence to support this. The passage graves of the Channel Islands form a particularly interesting group (Patton 1990). There are fifteen recorded passage graves in the islands, of which seven are in Jersey, four in

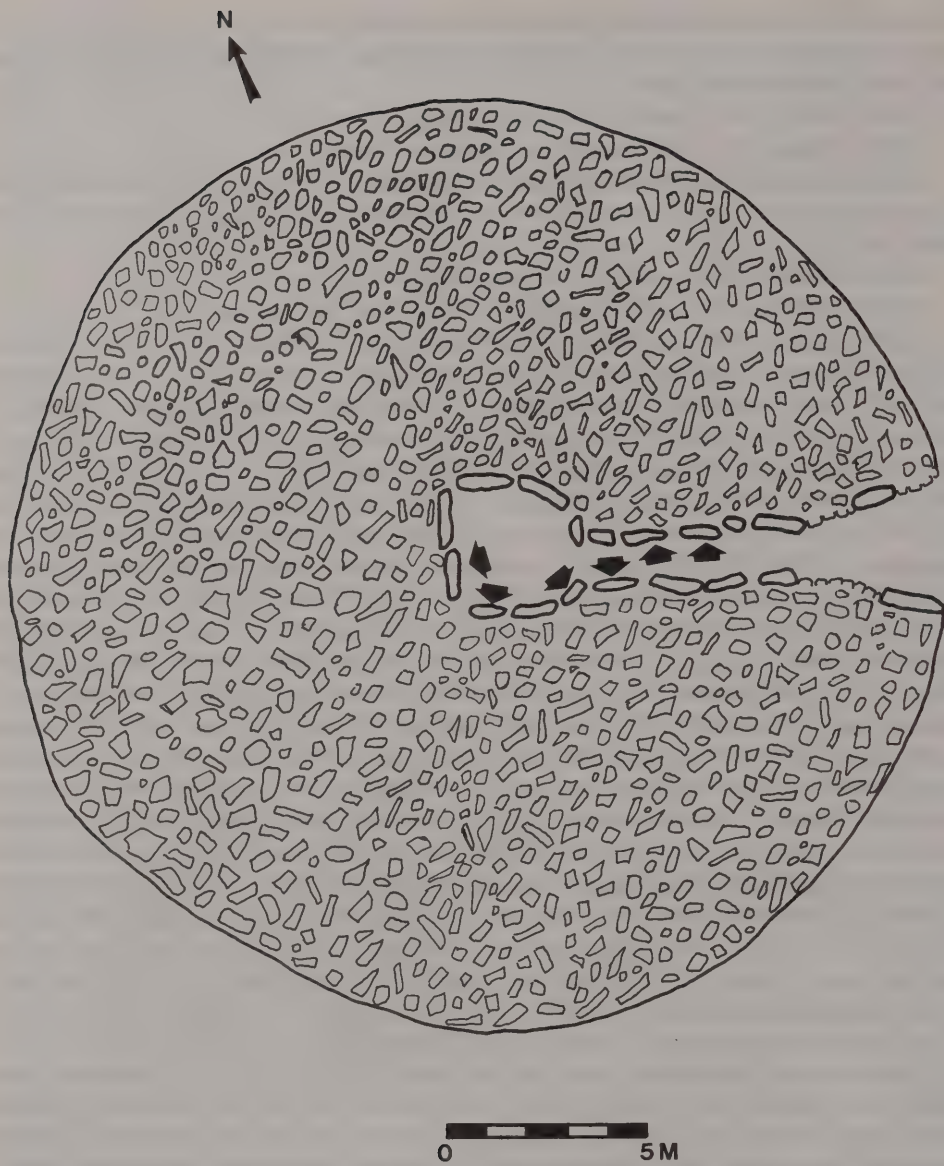


Fig. 3. The passage grave of Kercado, Carnac (Morbihan). The arrows show the positions of carved motifs.

Guernsey, three in Herm, and one in Alderney. The passage grave of La Hougue Bie, in the Eastern half of Jersey, clearly stands out from the other monuments by virtue of its size and central location (Fig. 4). The passage and chamber have a combined length of 18 metres, making it one of the largest passage graves in western Europe, whilst the cairn, 55 metres in diameter and 12 metres in height, is more than twice the size of any other cairn in the islands. Mourant (1933, 1937) has identified the sources of most of the stones used in the Jersey passage graves. Whilst most of the monuments are built of stone taken from within a radius of 1-2km of the sites themselves, La Hougue Bie incorporated stones from a much wider area (Fig. 4), including sources also used by the builders of the smaller passage graves of Le Mont Ubé and Le Mont de la Ville. La Hougue Bie, therefore, would appear to represent a degree of centralisation and, following the Friedman & Rowlands model, we might suggest that the group which occupied the eastern half of Jersey had acquired special status in relation to other Channel Island communities. Friedman & Rowlands stress communal feasting as the medium of inter-group competition, but in the case of the Armorican Neolithic, the construction of the monuments themselves may have played a significant role. In a recent article (Patton in press), it is suggested that the status of the Hougue Bie group may have depended in part upon their ability to control interaction between the Channel Islands and the Armorican mainland.

An even more spectacular development can be identified in southern Brittany, in the area centred on the Golfe du Morbihan and the estuaries immediately to the west. This development is particularly associated with the "Carnac tumuli" (cf Giot et al. 1979), a small series of very large monuments. The Carnac group includes only six surviving monuments, all of which are within a 20km radius of the town of Carnac. Whilst the precise chronology of these monuments is uncertain, they clearly overlap with the passage graves: like the passage graves, the chambers of the Carnac tumuli sometimes incorporate fragments of earlier carved menhirs (as at Mane-er-Hroek and Er Grah), and a pottery vessel of Middle Neolithic type (c 4250 – 3250 cal BC) was found in the megalithic chamber beneath the tumulus of Le Moustoir (L'Helgouac'h 1965). The mounds may be elongated or circular: the largest, Tumulus-St-Michel, is a long mound, 125 metres in length, 60 metres in width and 12 metres in height. These mounds cover closed megalithic chambers which contain human remains and lavish funerary depositions. The depositions include elaborate ceremonial axes of rare materials such as jadeite and fibrolite: the assemblage from Mane-er-Hroek includes 120 such axes.

Variscite beads and pendants are also found in large quantities (110 at Tumulus-St-Michel, 249 at Tumiac). The jadeite axes are of a particular type: very thin, with splayed blade and, in some cases, a perforated butt. This type of axe is specific to these monuments, and is never found in passage graves, though comparable axes are known from hoards in the area of Carnac and Locmariaquer (Le Rouzic 1927). Pottery is absent from these assemblages, with the exception of the vessel from Le Moustoir. The objects found within these chambers are essentially items of display: they are rare and must have circulated within closed social networks. Given the nature of the depositions, and the massive scale of the monuments themselves, it seems clear that the "Carnac tumuli" relate to high status social groups. The "Carnac tumuli" can perhaps be related to other monuments in the same area (Fig. 5). The passage grave of Gavrinis, in the Golfe



Fig. 4. The distribution of passage graves in Jersey (Channel Islands), showing the sources of stone used in the construction: 1: La Hogue Bie; 2: Faldouet; 3: Le Mont Ubé; 4: Le Mont de la Ville; 5: Les Cinq Pierres; 6: La Sergenté; 7: Grantez; 8: La Hougue des Géonnais.

du Morbihan, has a particularly impressive series of carvings (Shee-Twohig 1981), which clearly stands out from megalithic art elsewhere in Brittany: the monument is unique in that virtually all of the stones are elaborately decorated with motifs that completely cover the surface of the stones themselves. The carved motifs at Gavrinis include representations (Fig. 6) of the elaborate jadeite axes found in the "Carnac tumuli"; although representations of axes are a regular feature of Armorican megalithic art, Gavrinis is the only site where this particular form of axe is depicted. It would be tempting also to include the Carnac alignments in this discussion,

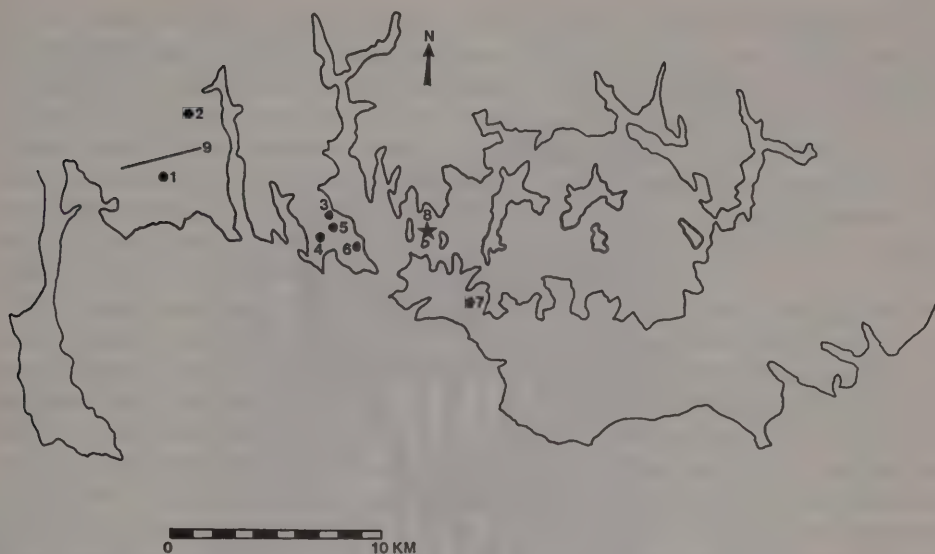


Fig. 5. Monuments in the Carnac/Golfe du Morbihan area: 1: Tumulus-St-Michel; 2: Le Moustoir; 3: Mané-Lud; 4: Kerlud; 5: Er Grah; 6: Mane-er-Hroek; 7: Tumiac; 8: Gavrinis (passage grave); 9: Carnac alignments.

since these constitute a further unique and spectacular element in the Carnac/Golfe du Morbihan landscape (Fig. 5). Megalithic alignments occur elsewhere in Brittany (Giot et al. 1979, Bender 1986), but the alignments of Carnac stand out by virtue of their scale and extent. The complex extends over 3 km and must originally have included over 3000 individual standing stones, arranged in three main alignments (Menec, Kermario, and Kerlescan). The alignments are associated with massive stone circles: Burl (1985) suggests that as many as a thousand people could comfortably have stood in one of these circles, and it is likely that the complex was a focus for very large gatherings of people. Unfortunately the chronology of the alignments is unclear, and for this reason it is impossible to be certain in assigning them to the same cultural complex as the "Carnac tumuli" and the Gavrinis passage grave.

With or without the alignments, the Carnac complex suggests a localised development of marked social differentiation in the area around the Golfe du Morbihan during the first half of the 4th millennium cal BC. As with the Channel Island evidence discussed above, this development could easily be explained by reference to the Friedman & Rowlands model. Following this model, we would expect phenomena such as the Carnac complex and La Hougue Bie to represent an intermediate stage in the evolution from "tribal societies" to "chiefdoms", and we would expect to see evidence for further centralisation and social differentiation during the second half of the 4th millennium cal BC, linked to the expansion of these systems. Such



Fig. 6. Carved motifs from the passage grave of Gavrinis, Larmor-Baden (Morbihan). After Shee-Twohig 1981.

a development was, in fact, proposed in the earlier literature. Briard & L'Helgouac'h (1957), for example, argued that the Carnac tumuli were of Chalcolithic date, and suggested that they were ancestral to the tumulus burials of the Armorican Early Bronze Age. The chronological evidence, however, can no longer support this suggestion. All of the evidence (the incorporation of re-used menhir fragments in the chambers of Mane-er-Hroek and Er Grah, the pottery vessel from Le Moustoir, and the comparison between jadeite axes found in the Carnac tumuli and carved representations of axes in the Gavrinis passage grave) points to a Middle Neolithic date for the Carnac tumuli (c 4250-3250 cal BC); between these monuments and the "Tumulus Culture" of the Early Bronze Age is a gap of at least 1000 years.

The Carnac tumuli appear to represent a very short lived phenomenon, which seems never to have spread beyond the area of its initial development. The construction of passage graves ceased in the final quarter of the 4th millennium cal BC. Some passage graves remained open and continued in use for several centuries after this, but others, including Gavrinis (Le Roux 1983) and La Hougue Bie (Patton 1990) were sealed up and abandoned. The Late Neolithic period (c 3250 – 2850 cal BC) was marked, right across the Armorican area, by the appearance of new types of megalithic monument, most importantly gallery graves and lateral entrance graves. This is associated with a general expansion of Neolithic settlement into the inland areas of the Armorican massif (the distribution of passage graves being almost exclusively coastal). The organisation of space in Late Neolithic monuments is less complex than that of the passage graves: a gallery grave (Fig. 7) consists of a simple rectangular chamber, in some cases subdivided into main chamber and an antechamber, whilst a lateral entrance grave is a similar monument, elaborated by the addition of a short entrance passage set at right angles to the long axis of the chamber. Gallery graves are found right across northern France, from western Brittany to the Paris Basin, whereas lateral entrance graves occur only in the Armorican region. Because of the problems of soil acidity, skeletal remains are rarely found in Armorican megaliths. In Normandy and the Paris Basin, however, gallery graves have been found to contain the skeletons of several hundred people (Daniel 1960) suggesting a more open access to the monuments than was the case with the passage graves.

Art is rare in the Armorican gallery graves and lateral entrance graves, but carved representations are known from some monuments in northern Brittany (Shee-Twohig 1981). Unlike the motifs in passage graves, which are highly stylised, and often hidden from view, these motifs are in prominent position and are explicitly representational. The most common motifs are hafted axes, and a female anthropomorph, represented as a pair of breasts and a necklace, and executed in *haute-relief*. The female anthropomorphic motif is also known from tombs in the Paris Basin and menhirs in Brittany and the Channel Island (Kinnes 1980).

If the evidence for the Middle Neolithic period suggests increasing restriction of access to monuments and ritual knowledge, the Late Neolithic evidence suggests a progressive reversal of this trend. This seems to be linked to a general reduction in the degree of social differentiation expressed in ritual and mortuary practice, and to a collapse of the higher level social groupings represented by monuments such as La Hougue Bie. None of the Late Neolithic monuments stand out from the others in terms of their size, and there is little evidence for inter-communal hierarchy.

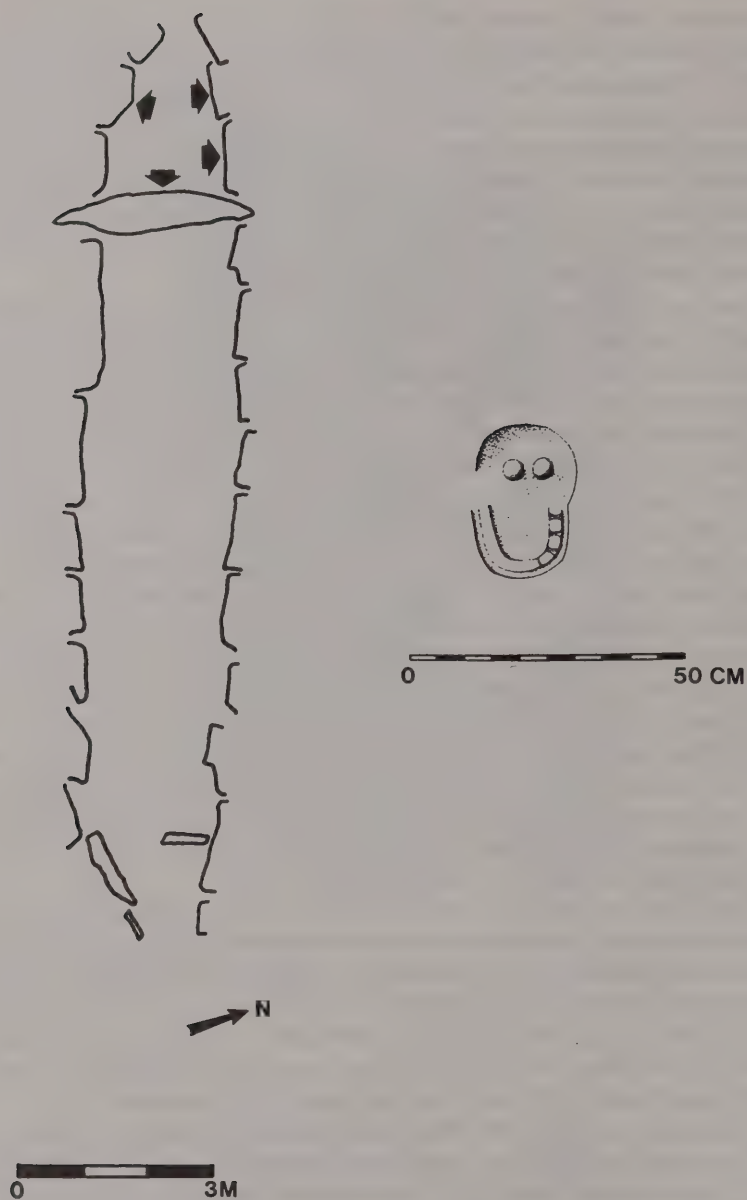


Fig. 7. The gallery grave of Prajou-Menhir, Trebeurden (Cotes-du-Nord) and carved anthropomorphic motif from the same monument. The arrows on the plan show the positions of carved motifs. After L'Helgouac'h 1966.

The evidence for the Chalcolithic period (c 2850–2250 cal BC) suggests a continuation and intensification of these general trends. The gallery graves, lateral entrance graves and remaining passage graves were sealed up and abandoned: where evidence has been preserved and adequately recorded, it suggests a deliberate sealing of the monuments. In some cases this involves a simple wall built across the entrance, whilst in other cases (as at Ile Carn : Giot 1987), it involves a massive extension of the cairn to enclose the earlier monuments. Some monuments have provided evidence for terminal depositions, placed within the chamber, or at the entrance, as a final offering (Patton 1990); pottery is the most common element of these depositions, but metal objects and flint arrowheads are also known. In such cases the floor of the monuments seems to have been covered by a sterile layer of earth, rubble or limpet shells, a procedure which finds parallels in Paris Basin gallery graves (Leclerc 1987). It seems clear that most of the large megaliths in the Armorican region had been abandoned before the end of the Chalcolithic period; in cases where later material has been found in such monuments, the context is clearly intrusive. In the Channel Islands, the same period is marked by the proliferation of small megalithic cists and cist-in-circle monuments (Patton 1987, 1990), in some cases associated with particular settlements.

Kinnes & Hibbs (1988) have estimated that the construction of the Hougue Bie passage grave would have required a minimum workforce of 200 people; this estimate is based on calculations of the number of people that would be required to move the largest stone from its source to the site of the monument. Assuming that most of the actual hauling work was done by adult men and, (following palaeodemographic studies: cf Hedges 1983), that adult men comprised around 23% of the population, we can suggest a figure of 800-1000 people as a minimum size for the Hougue Bie group. Using the same calculations, it has been estimated that the construction of the smaller passage graves and gallery graves of the Channel Islands would have required an average workforce of 100-150 people, corresponding to a community of 300-600 (Patton 1990), and that most of the Chalcolithic cist-in-circle monuments could have been built by gangs of 20-50 people, corresponding to communities of 100-200. Calculations such as these can never provide anything more than a very rough estimate of the number of people involved, but if this information is placed in cultural and chronological context it may give some clues as to the significance of developments during the 3rd millennium cal BC. As far as these developments are concerned, the Channel Island evidence can be seen as a microcosm of the more general trends which can be identified across the Armorican region. The passage grave of La Hougue Bie was apparently sealed and abandoned at an early stage, probably between 3250 cal BC and 2850 cal BC. The remaining passage graves and gallery graves in the Channel Islands were abandoned between 2850 cal BC and 2250 cal BC, the period which also saw the proliferation of smaller monuments. The evidence, therefore, suggests a progressive decentralisation of ritual practice during the 3rd millenium cal BC linked, as we have seen, to a general reduction in the degree of social differentiation expressed in ritual and funerary practice.

The late 4th millennium cal BC in the Armorican region is marked by the development of new exchange systems. These exchange systems seem initially to have operated alongside the established networks of stone axe exchange. There is some evidence to suggest an intensification of stone axe production and exchange at the end of the 4th millennium cal BC. The most important production centre in Brittany is at Plussulien, Côtes-du-Nord (Le Roux 1979), and this site has provided evidence for increasingly systematic exploitation of "Type A" dolerite during this period, with the use of fire to fracture the rock. The Late Neolithic period (c 3250-2850 cal BC) is also marked by the appearance of Grand Pressigny flint, from a source in Central France, circulated within extensive networks of exchange covering much of France. The flint, which has a distinctive "honey" colour, was used mostly for the production of fine blades, though barbed and tanged arrowheads are also known. Grand Pressigny flint waste is unknown in the Armorican area, suggesting that the blades and arrowheads were acquired as finished products; scrapers and other domestic tools are similarly unknown. The fine blades of Grand Pressigny flint are quite unlike anything produced locally, and should probably be seen as items of display rather than functional tools. Blades of Grand Pressigny flint are relatively rare in Armorica, and their circulation must have involved a more competitive form of exchange than that represented by the established networks of stone axe exchange. There are, however, no large hoards of Grand Pressigny blades in the Armorican area, and whilst they do occur in funerary contexts there are no lavish burials distinguished by large numbers of these blades. Taken as a whole, the evidence for the Late Neolithic period suggests only a limited degree of social differentiation. There is little evidence for inter-communal hierarchy at this stage; generational and gender based asymmetries are likely to have continued to some extent, and there is some evidence for social differentiation linked to competitive exchange, perhaps between local "big men" (cf Sahlins 1963).

The circulation of Grand Pressigny flint declined during the 3rd millennium cal BC, with the appearance of a new material culture package including metal objects: gold jewellery and copper axes and daggers. Like the Grand Pressigny flint blades, these items are relatively rare, and must have circulated within a competitive system of exchange, and, like the flint blades, they should probably be seen primarily as items of display. Copper axes are too rare at this stage to have been of any real significance in subsistence terms, and it seems clear that most work continued to be done with stone tools. Apart from the copper tools, many of the items in the package are objects of personal adornment: gold jewellery, jet beads, schist "wristguards" etc. These items do constitute a distinct "package" in that they regularly occur together, often in association with Beaker pottery (Giot *et al.* 1979). This package, of course, is simply a local variant of the more widespread Beaker complex (cf Harrison 1980). The range of objects in the Armorican assemblages suggests a significant intensification of competitive exchange systems, and the "Beaker" phenomenon in Europe more generally has been interpreted as evidence for expanding systems of competitive exchange and display (Shennan 1977, Harrison 1980). This intensification suggests increasing social differentiation, and in some areas of Europe, including the British Isles, this is manifested by the appearance of ostentatious individual burials. This is not the case in Armorica, however, where items belonging to the "Beaker package" are found

most frequently as secondary (and in many cases final) depositions in earlier monuments. In Brittany, individual burials appeared at the end of the 3rd millennium cal BC, marking the transition from the Chalcolithic to the Early Bronze Age (Briard 1984). Bell Beakers disappeared but "wristguards", gold jewellery, and metal daggers attest to significant continuity. A new range of display items appeared, reflecting advances in metallurgical technology: these include bronze daggers and rapiers with wooden hilts, in some cases inlaid with gold studs. Elaborate flint arrowheads, clearly items of display rather than functional weapons, are also known in Armorican early Bronze Age assemblages.

Tumulus burials of the Early Bronze Age (c2250-1700 cal BC) are known principally from northern and western Brittany (the départements of Côtes-du-Nord and Finistère) and are absent from southern Brittany, the Cotentin peninsula, and the Channel Islands (Briard 1984). These monuments are round barrows covering simple wooden or drystone chambers; the chambers contain single burials (though skeletal remains are rarely preserved) accompanied by gravegoods. Two distinct series of tumuli can be identified on the basis of the gravegoods (Briard 1984). Depositions of the first series include bronze weapons, in some cases decorated with gold studs, bronze axes, elaborate flint arrowheads, "wristguards," and jewellery of gold, amber, and jet. Comparison of the depositions from these tumuli suggests a definite hierarchy; most of the burials have bronze daggers and flint arrowheads but only some have gold objects (9 of the 31 tumuli listed by Briard), axes (13), or amber jewellery (2). The tumuli of the second series are essentially similar in structure to those of the first, but the gravegoods are quite different. Pottery (unknown in series 1 tumuli) is the most important element of these assemblages; some of the burials also have a single dagger (most of the series 1 assemblages have several daggers) and a few have amber beads, but arrowheads, gold jewellery, bronze axes, and swords are completely absent. The two series are quite distinct, but the significance of this is unclear. It has been suggested (Giot *et al.* 1979) that the second series tumuli are later in date than the first series, but the chronological evidence is not conclusive. Alternatively, the distinction may reflect gender differences, but in the absence of skeletal remains it is impossible to establish this with any certainty. The two series have slightly different distributions; tumuli of the first series are concentrated in coastal areas of northern and western Brittany, whereas those of the second series are also found in significant numbers in inland areas of western Brittany.

The stone axe exchange systems which had developed in Brittany during the Neolithic seem to have collapsed at the beginning of the Early Bronze Age, and production at major centres such as Plussulien ceased (Le Roux 1979). This is not a simple matter of metal tools replacing stone ones; bronze was a rare commodity throughout the Early Bronze Age. The production and use of stone axes continued (cf Patton 1988), but these were made with locally available material, and played no significant role in inter-communal exchange. In a recent paper (Patton *in press*) it is argued that the significance of Armorican stone axe exchange systems should be understood in relation to the social structure of the communities involved. The collapse of these exchange systems, therefore, can perhaps be understood in the context of more fundamental social transformations at the end of the 3rd millennium cal BC.

The developmental sequence that we have followed is, to some extent, a cyclical one. The Early and Middle Neolithic periods (c 4800-3250 cal BC) are marked by evidence for increasing social differentiation, linked to control of ritual practice and sacred knowledge, and probably also to control over the circulation of material items (including stone axes from particular sources) required for socially important transactions. Social differentiation in the initial stage was probably along inter-generational and gender lines, but the 4th millennium cal BC is marked by evidence for increasing inter-communal hierarchy, which can perhaps be understood in relation to the processes of inter-group competition outlined by Friedman & Rowlands (1977). The Late Neolithic and Chalcolithic periods (c3250-2250 cal BC) are characterised by a progressive reversal of these trends, with the disintegration of inter-communal hierarchies and the decline of social differentiation in ritual and mortuary practice. The same period saw the development of competitive exchange systems, and the archaeological evidence suggests a gradual intensification of these systems during the 3rd millennium cal BC. This process of intensification is linked to increasing social differentiation, culminating in the development of the Armorican "Tumulus culture", with lavish individual burials. Social hierarchy in the Armorican Early Bronze Age seems not to have involved control of communal ritual, and in this respect the Early Bronze Age social formation is quite different from that of the Middle Neolithic period.

From Epigenesis to Dialectics: the Dynamics of Cultural Change in Prehistory

The general model developed by Friedman & Rowlands (1977) and outlined at the beginning of this paper cannot adequately account for the developmental sequence identified in the case-study. The Early and Middle Neolithic sequence fits the general model very well, with evidence for increasing centralisation and social differentiation. Following the model, however, we would expect to see evidence for a further intensification of these processes during the Late Neolithic, leading to an expansion of the earlier power structure; in fact, the evidence suggests the collapse of these structures, followed by the gradual emergence of an entirely different set of power relations. One case-study, of course cannot invalidate a general model, and in any case, one would not expect all societies to follow exactly the same trajectory. It may, nonetheless, be possible to make some more general points on the basis of the case-study.

The Friedman & Rowlands model is epigenetic, in that the development of a given social formation is explained in relation to structural features of the configuration which historically precedes it. Thus the "tribal" societies discussed in Friedman & Rowlands' (1977) paper are considered to embody a structural tendency towards expansion and increasing social differentiation, which results ultimately in the evolution of chiefdoms. The model is also evolutionary in that linear progression is assumed, with society becoming increasingly hierarchical and increasingly centralised as it develops. The evolutionary process is assumed to be continuous: each phase in the development is considered to represent a consolidation and expansion of previous power structures. We would, therefore, expect to see a linear sequence of progressively increasing social differentiation and centralisation, rather than a cyclical development of the sort identified in the Armorican case-study.

The sequence identified in the case-study can perhaps be understood in the context of a dialectical approach. The principle of epigenesis is central to such an approach, but a continuous evolutionary development is not assumed. The processes of expansion and intensification described by Friedman & Rowlands depend upon the production of increasingly large surpluses, and the model acknowledges that the expansion of a given power may be halted, and the system may collapse, if environmental constraints prevent increasing surplus production. These expansionary processes, however, may put pressure not only on the environment, but also on the social formation, giving rise to increasing conflict which may in itself lead to the collapse of the system. In the Friedman & Rowlands model, a collapse of this nature is seen as an evolutionary dead end, causing the society concerned either to stagnate, or to revert to an "earlier" (i.e. more simple) form of social organisation. Central to a dialectical approach, however, is the idea that social change may occur not through the consolidation and expansion of existing power structures (though this, of course, is possible), but precisely through their collapse.

In the dialectical model of social change developed by Sartre (1976), *praxis* (human action) is taken as a starting point. *Praxis* is always situated in a given socio-historical field which is itself defined (and is continually redefined) through *praxis*. This is what Sartre defines as the *practico-inert*: it is the inert structure created through *praxis* in the past, which constrains *praxis* in the present. According to Sartre, *praxis* is in essence dialectical, since it always involves the transcendence of an existing reality (the *practico-inert*) towards a future totalisation. Social change involves the transcendence of *practico-inert* structures through *praxis*, and results ultimately in the development of new *practico-inert* structures.

To understand what this means in practice, we should return to the case-study. The evidence for the Middle Neolithic of north-Eastern France fits well with Friedman & Rowlands' characterisation of a "tribal" social formation; power relations, we may suggest, were based on elders' control of ritual practice, and on control over the circulation of socially valued material items. This would enable elders to make demands on the labour of younger men by controlling their progression into adulthood, marriage, and independence (cf Meillassoux 1964, 1967, Bender 1985). Inter-group competition seems to have resulted in the development of further levels of social asymmetry, with clear evidence for intercommunal hierarchy in some areas. The apparent collapse of this social formation during the 3rd millennium cal BC coincides with the development of new competitive exchange systems, involving the circulation of display items. These developments are perhaps best explained as reflecting the emergence of "big men" (cf Sahlins 1963). Typically, a "big man" gains prestige by displays of generosity in sponsoring large feasts, and by offering personal assistance. A situation of indebtedness is thus established, which enables a "big man" to make demands on the labour of his followers, and to appropriate a surplus from them which can be used to sponsor lavish feasts, to acquire prestige items, or to increase the size of his own domestic unit by acquiring further wives. Internal tension within the "tribal" configuration may have created an environment which emergent "big men" could exploit. "Big men" may have provided young men with an alternative route to independence by giving them assistance in acquiring the valuables needed to pay for initiation rites,

bridewealth transactions etc. The rise of "big men" would have made the position of the traditional elites increasingly insecure. Dominant groups would find it increasingly difficult to appropriate the surplus required to sponsor lavish feasts of the construction of large monuments, and their claims to supernatural patronage would thus become less credible. Inter-generational asymmetries may not have disappeared completely, and elders may have retained some measure of control over initiation ceremonies and ritual practice. It seems however, that inter-communal hierarchies collapsed totally, and that control of ritual practice was greatly reduced. As the "big men" gained an increasing number of clients, this is likely to have resulted in an intensification of competitive exchange systems. As "big men" competed with one another for clients, some would gain at the expense of others; those who attracted the greatest number of clients would be able to acquire more prestige items and could sponsor more lavish feasts than their rivals, and this in turn would enable them to attract even more followers.

This competitive cycle would lead to increasing social differentiation, as a small number of "big men" established a secure power base: in practice, this differentiation would have a hereditary element since, in a system based on patronage, the son of an established "big man" would have an advantage in gaining clients of his own and might stand to inherit his father's clients on his death. As the importance of competitive exchange systems increased, a system of alliances would have developed, linking "big men" in adjacent areas. If certain groups were able to monopolise the supply of particular prestige items, inter-communal hierarchies might develop. A system of competing "big men", therefore, may involve the same tendencies towards increasing centralisation and social differentiation as the tribal configuration, and it is in this context, perhaps that we should understand the development of the Armorican "Tumulus Culture" (Briard 1984).

The above discussion is intended only as a brief sketch of the kind of processes that might underlie the developmental sequence identified in the case-study. The progressivist assumptions which underlie many of the earlier "evolutionary" models have been widely criticised on theoretical grounds, and in the case-study presented here, it is clear that the data themselves will not support such a model. The growing dissatisfaction with models of social evolution has in some quarters led to the implicit or explicit rejection of social process as a fundamental concern of archaeology, and this paper is intended as a preliminary statement of a dialectical model of social dynamics, which avoids many of the problems of "social evolution".

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“Strange Symbols of Some Kind”

The Problems Surrounding Stamped Roman Clay Walls

By MILES RUSSELL †

“As for ‘wattle and daub’, I wish that it had never been invented”

Vitruvius II, VIII

Ford:— “Any idea what these strange symbols on the wall are Zaphod?”

Zaphod:— “I think they’re probably just strange symbols of some kind”

Douglas Adams

“The Hitch-hiker’s Guide to the Galaxy’ Radio Scripts - 1985

Introduction

Wattle and daub is a bulding material which is quick and easy to use. The early Roman foundations of Colchester, Essex, Verulamium, Hertfordshire and London all appear to be substantially built in this way (Crummy 1984; 23).

Stamped clay walling has been recorded from Roman sites, mostly in Eastern England, since 1901 (St-John-Hope 1901; 25). It is a type of material which is preserved if wholly or partially baked and such baking generally occurs accidentally if the building, of which it forms a part, is destroyed by fire. Until 1988 no full synthesis on this material had been published, comment upon it having been largely confined to the pages of individual excavation reports (Russell 1988). It is hoped that this article will clear up some of the misconceptions concerning the date, distribution and reason behind the stamping of Roman daub walls.

The daub material is, once partially fired, fragmentary and highly friable. All research has therefore been conducted primarily on rubbings, drawings and photographs taken at the time of excavation and less by studying the daub itself, which will deteriorate after years of storage. Correct ‘orientation’ of the patterns may be gained by a study of the wattlework impressions preserved on the reverse of the material. (For the main types of wattlework walls see Figure 2). The terms ‘daub and ‘clay’ will be used to describe all the baked material, despite any difference in composition, as this article is concerned only with stamp patternation.

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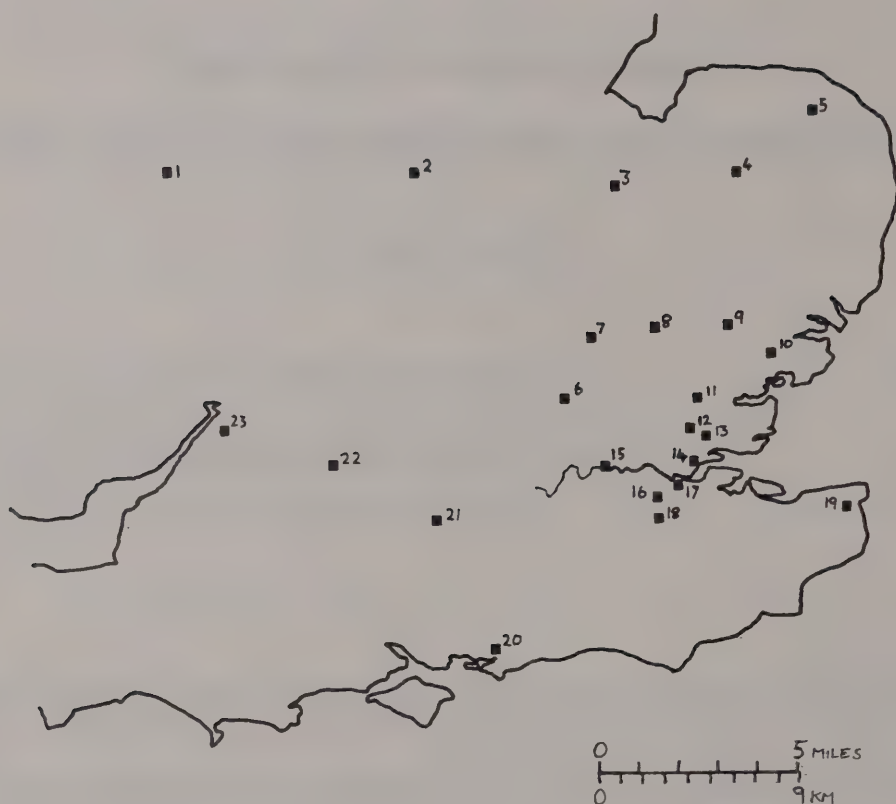
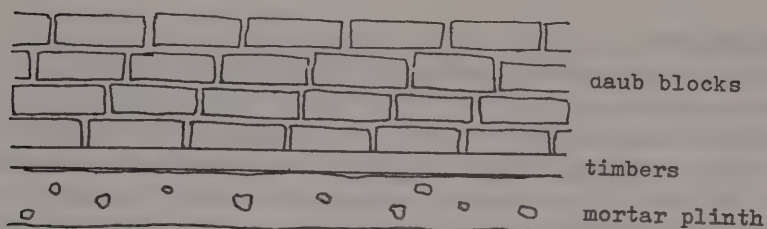
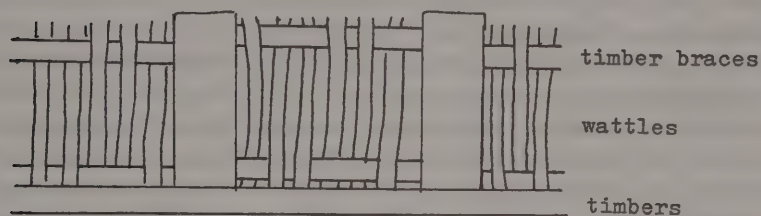


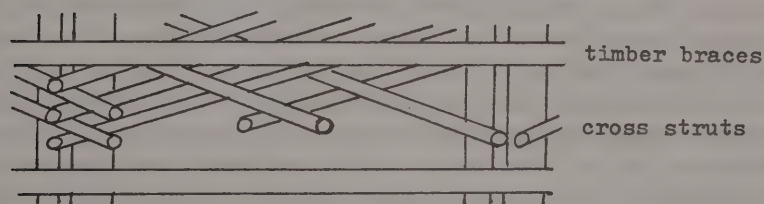
Fig. 1. The distribution of stamped daub in Britain. 1: Wroxeter (SHROPS: SJ 5608); 2: Leicester (LEICS: SK 5808); 3: Grandford (CAMBS: TL 393997); 4: Ashill (NORF: TG 90958); 5: Brampton (NORF: TG 224238); 6: Verulamium (HERTS: TL 1307); 7: Baldock (HERTS: TL 253340); 8: Grt. Chesterford (ESSEX: TL 5042); 9: Gestingthorpe (ESSEX: TL 253340); 10: Colchester (ESSEX: TL 9925); 11: Chelmsford (ESSEX: TL 7007); 12: Billericay (ESSEX: TQ 675938); 13: Wickford (ESSEX: TQ 7493); 14: Mucking (ESSEX: TQ 673803); 15: City of London (TQ 3581); 16: Lullingstone (KENT: TQ 529651); 17: Springhead (KENT: TQ 641715); 18: Titsey (SURREY: TQ 4054); 19: Richborough (KENT: TR 3260); 20: Fishbourne (W.SSX: SU 836042); 21: Silchester (HANTS: SU 6462); 22: Wanborough (WILTS: SU 195853); 23: Frocester (WILTS: SO 785029).



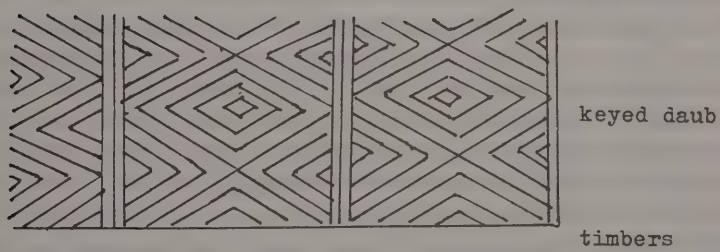
Daub Block.(After Crummy,1984, 21)



Stud + Wattle.(After Crummy,1984, 21)



Cross Struts.(After Green,1977, 184)



The Finished Product.

Fig. 2. Types of wall construction

Stamp Identification

From the first moment of discovery at Silchester (St. John Hope 1901) it was obvious that the regular patterns preserved in some pieces of baked daub walling had been created by a stamp of some kind. Just what kind of stamp was used, is a problem which today remains largely unresolved. Since 1901 the three methods suggested have been that of a flat stamp, carved shuttering and a roller die similar to the ones used on Roman box-flue tiles.

Before an attempt can be made to decide between these methods, the positive evidence for the use of each must be examined.

Flat Stamps

St. John Hope (1901, 25; Silchester) and Bushe-Fox (1912, 10; Wroxeter) were among the first to suggest that a flat wooden stamp was used to key daub walling. Frere (1972, 73-5) confessed difficulty in distinguishing whether a flat or a roller stamp had been used at Verulamium, but he suggested that a flat stamp would be easier to make. This may well be true, but once made, the roller would appear easier and indeed quicker to operate, rolling the design on in a series of continuous strips, unlike the flat wooden block, which would require almost constant pressure into, and removal from, small areas of clay walling. Indeed it is this direct pressure by a flat board into relatively small areas of the daub wall which could have created serious problems resulting in daub material coming away with the stamp.

These are theoretical problems and cannot be used as evidence for or against the flat stamp until they have been tested in practice with reconstruction dies. What then can be said, to confirm or refute the use of a flat stamp, from the evidence of the patterning itself? Would a flat stamp create a distinctive and immediately identifiable design?

If it is taken that a roller-die covers a wall surface from ceiling to floor in one continuous motion, then if overlapping of patterning was to occur, one would expect it only to occur along the vertical edges of each strip. The flat stamp, on the other hand, is limited in size and will only be able to cover relatively small areas of the wall surface at any one time. The pattern produced by such a stamp will not be seen to repeat continuously in vertical strips like the roller. There will be gaps or areas of overlap in the patterning which, unlike the roller, will occur along both the vertical and horizontal edges. If a piece of daub shows signs of horizontal and vertical overlap, can it therefore be said to be the product of a flat stamp?

In 1974 John Evans and Terry Turbin, of the Archaeological Sciences Department of N.E. London Polytechnic, began work studying the composition and patterning of the Roman daub material from Mucking, Essex (TQ 673803; Jones 1973, 15; Jones 1974, 442). The daub was fragmentary, ranging from pieces measuring 3 x 3.5cm to 19 x 19.2cm, but on some examples there was clear evidence of horizontal and vertical pattern overlap. M. Jones, the director, took this as proof positive that a flat stamp had been in operation at Mucking. John Evans (pers. comm.) has since disputed this, suggesting that there are two ways in which a roller die could create overlap patterns so far considered as a exclusive trait of the flat stamp; firstly if a roller were operating from ceiling to floor, not in one continuous action, but in a series of actions, each time removing and re-applying the roller; and secondly, if the roller were used in the horizontal plane from corner to corner of a room and not from ceiling to floor.

If the final statement were required concerning the presence of a flat stamp in the keying of daub it must be said that, at the moment, there is no firm evidence either for or against its use.

Roller-dies

As I have mentioned above, the main characteristic of a die in the form of a roller is a strip of patternation that repeats without any sign of overlap, suggesting application in one continuous action. Such repetition of pattern will only be seen on the daub if the daub itself survives in large or reconstructable fragments. Preservation, however, is not always good and reconstruction not always possible, but there is another way in which complete areas of daub patternation may be studied: on the reverse side of Roman wallplaster.

Walls built of wattle and daub, or of daub blocks (see Figure 2) are comparatively easy to demolish. Supposing that a keyed wattle and daub wall was, at some date covered in a layer of wall plaster, then when the structure, of which it forms part, went into disuse, the walls would have collapsed with large areas of wallplaster still adhering to the daub. This daub, not having been fired or partially baked, would eventually have returned to its natural state, forming a thick clay layer over the fallen plaster (as at Silchester: St-John-Hope 1901, 24). The chevron key imprint of the now decayed daub will remain preserved on the back of the wall plaster.

An ideal opportunity to study complete daub patternation presented itself at St. Albans in 1956. The excavations of a second century house in Insula XXI of the Roman Town Verulamium (Frere 1956, 13; Frere 1983, 16ff) produced large sheets of fallen wallplaster preserving areas of chevron keying. These were duly photographed but sadly as the excavations were given little time to conduct their work no further records of the material were made (S. Greep and P. McCulloch, Verulamium Museum - pers. Comm.). The photographs themselves (Frere 1956, 13) are not clear enough to be used as evidence for or against the roller theory and unfortunately the plaster in question has now been remounted in the Verulamium Museum so that the reverse is no longer visible.

Imprints on the back of plaster from Wanborough, Wiltshire (SU 9545837), Titsey, Surrey (TQ 4054), Lullingstone, Kent (TQ 529651) and Frocester Court, Gloucestershire (SO 785029) have also been preserved, but the plaster is too fragmentary to show either repetition or sufficient signs of edging (Russell 1988; 19, 25). The problem is that, until recently, the discovery of Roman wall plaster has led to much study and discussion on the frontal painted frescoes and very little on any reverse keying designs. This bias is fortunately becoming less marked and may lead to a re-analysis of much remounted or stored wall-plaster.

-Attention must therefore be turned to the daub material itself to see if extensive enough fragments have survived to show signs of repetition without the overlap characteristic of the roller die. At Colchester, Essex, during excavations of 1971-4, a building destroyed in the Boudiccan fire of AD 60/1 was unearthed in Lion Walk (Building 8, Crummy 1977, 80; Crummy 1984, 20-23, 40). Here large areas of keyed daub were found in sufficient undisturbed quantity for a reconstruction to be attempted. The stamped area consists of vertical chevron panels c.26cm in width and over 24cm in length without demonstrating signs of stamp overlap (Figure 3). The crucial point here is that at a vertical interval of 20.9cm repetition of pattern occurs (Russell 1988, 20 -7).

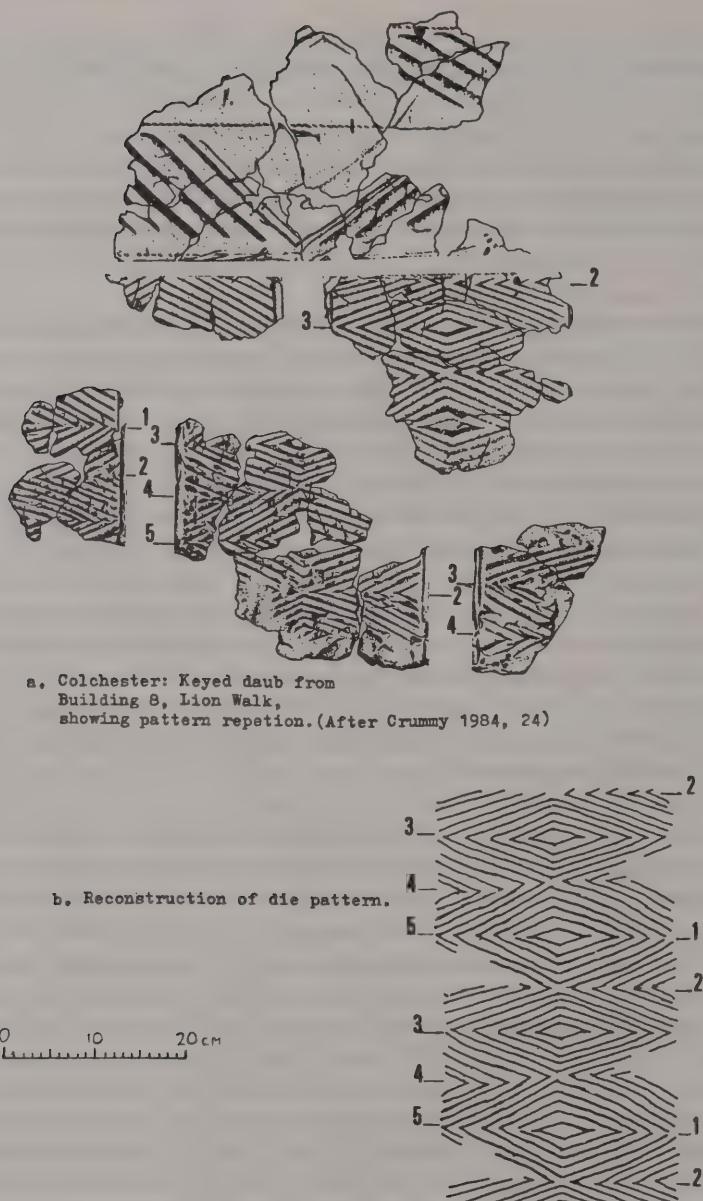


Fig. 3. Repetition in die patterns I

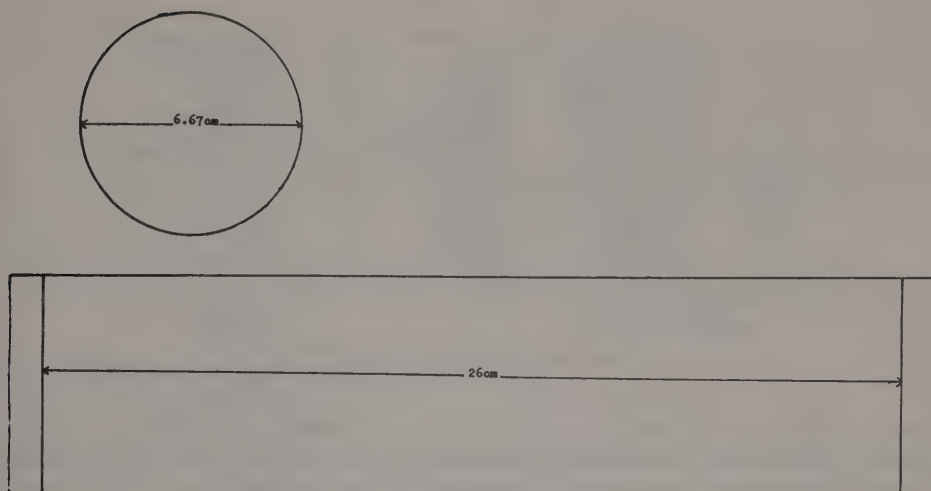


Fig. 4. Dimensions of the Colchester Roller

It is thus evident that, not only was a roller die in operation at Building 8, Lion Walk, Colchester, but also that an attempt to reconstruct its pattern and dimension may be made. (I say 'attempt' as it is not known how much the daub has shrunk during the baking process. All measurements given are therefore the smallest possible for the dimensions of the roller). The daub pattern itself is 26cm in length with a 1cm border at each end. This could either mean that the ends of the roller were defined by a 1cm raised strip or that these vertical strips were later added to the design while the daub was still wet. The pattern repeats after 21cm which gives the total circumference of the roller die. Using the mathematical formula of :

$$\text{CIRCUMFERENCE} \div \pi = \text{DIAMETER}$$

The diameter of the roller works out at 6.67cm.

$$21 \div 3.148 = 6.67$$

With figures rounded up, the roller appears quite large at 6.7cm in diameter x 26/28cm in length. The result of this may be seen in Figure 4.

D. Rudkin's excavation at Fishbourne Harbour in West Sussex (SU 836042) provides the second example of repetition without overlap (Rudkin 1986, 66; Russell 1988, 21-9). The piece of daub under study (Figure 5) is a single piece 23cm long x 27cm wide. The pattern in question comprised of a series of single shaped chevrons in strips 11cm wide and repetition occurring at 14.8cm. Using the same formula of

$$\text{CIRCUMFERENCE} \div \pi = \text{DIAMETER}$$

The dimensions of the roller can be resolved. It is small compared to the Colchester example; 11cm with a diameter of 4.7cm (Figure 6).

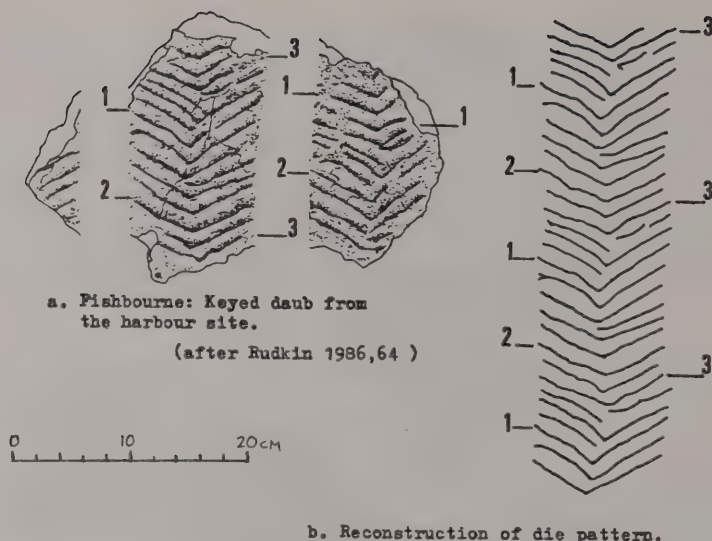


Fig. 5. Repetition in die patterns II

Carved Shuttering

This was an idea first put forward by P. Crummy in 1984 when discussing the daub from Building 8, Lion Walk (Crummy 1984). Betts (pers. comm.) and Wickenden (1983) have both elaborated on this idea suggesting that liquid daub was poured between two boards. This idea is interesting, but is the first example in this study of stamped daub, of an argument known as "Occam's Razor" - "Why look for a complicated answer when a simple one will do?". The logistics of liquidifying and pouring daub between two pieces of carved shuttering and waiting for it to set, seems incredible when compared to the construction of a daub wall and keying the surface with a roller which would, in effect, produce the same result.

Carved shuttering may be ruled out from sites where keying patterns overlap, suggesting the direct application of a stamp onto the still wet daub wall, rather than liquidified daub poured into a wooden mould. Carved shuttering can also be discounted at Colchester, where it was originally suggested, where it can be seen that the pattern repeats continuously in strips and at different levels on each panel, suggesting creation by a roller-die (Figure 3).

Conclusions

The fragmentary picture of the surviving keyed daub prevents a full analysis of patterning. What are needed are more attempts to reconstruct complete areas of patterning (as at Colchester) or an analysis of the vital evidence preserved on the reverse of wallplaster, if the interpretation of stamp patterning is to be re-evaluated.

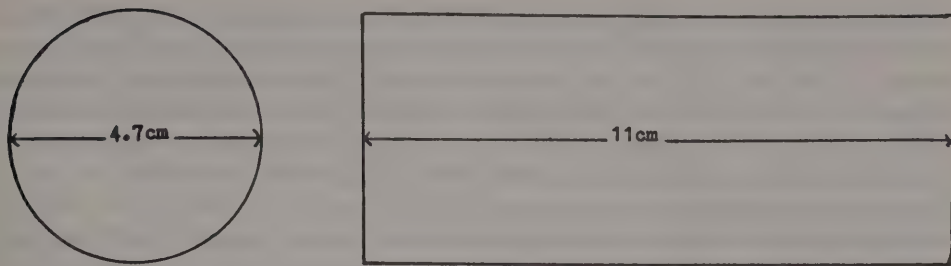


Fig. 6. Dimensions of the Fishbourne roller

Neither flat stamp, roller stamp, nor carved shuttering for that matter, have been recovered archaeologically. Nevertheless, looking at the problem from a practical viewpoint, if large areas of clay walling were to be keyed, then the die required would need to be in a form which was quick and easy to apply and relatively easy to transport from site to site. To this end the roller would appear the most satisfactory of the three keying methods.

It has only been possible to show that a roller was in operation at Colchester, Essex, and at Fishbourne, West Sussex. It cannot therefore be said that roller dies were responsible for every stamp pattern found on daub walling. What can at least be said is that whilst there is no firm proof that flat dies or carved shuttering were ever used to key daub walls, there are two examples which do show definite evidence of a roller die.

Do the Stamps on the Daub Match Any on the Tile?

In 1949 A.W.G. Lowther wrote a paper on relief-patterned tiles in which he noted 46 different types of die pattern which could be distinguished into nine broad groups. Since 1949 there has been continued research into roller stamped tiles, but generally Lowther's Nine Broad Groups remain unchanged (Figure 6).

- GROUP 1 - 'W' Chevron
- GROUP 2 - 'Dog and Stag'
- GROUP 3 - 'Florid'
- GROUP 4 - 'Compass'
- GROUP 5 - 'Diamond and Lattice'
- GROUP 6 - 'Billet'
- GROUP 7 - 'Rosette'
- GROUP 8 - 'Addenda'
- GROUP 9 - 'Plain and Chevron'

The three simplest design types (Groups 5,6,9) were taken by Lowther to possibly represent the earliest forms in the evolutionary scale. Groups 5 and 9 have been found in the late first/early second century contexts in London, Canterbury and St. Albans (Betts, pers. comm.), but Group 6 designs do not seem to appear before the second century.

The confined use on pre AD 100 sites in south east Britain of dies from Group 5 ('Diamond and Lattice') led Black, in 1985, to postulate that a group, or firm of stamps/makers were operating in that area. He saw the first employment of this 'London/Sussex' firm in the construction of the Fishbourne 'Palace' leading to their more widespread employment in the S.E. between AD 80-90. Further phases of tile manufacture and the expansion of other firms or groups of tile-makers in other areas followed. (Black 1985; Black pers. comm.)

Why should a tile and daub stamp comparison be important?

As what positive evidence there is appears to point towards the use of a roller die in the stamping of daub walls, it is important to understand whether the daub patterns can be equated in any way with the established roller stamp tile sequence.

If the pattern on the two types of material can be regarded as having the same origin, then a vital point concerning tile manufacture and distribution may be cleared up. Tiles can be mass produced. They can be made at a kiln centre and shipped out 'en masse' to sites in the locality. Johnston and Williams (1979) queried the transport problems concerned with this theory and asked whether it was entirely feasible. They suggested that perhaps what one was seeing in the box-flue tiles were the products of itinerant tilemakers travelling from area to area, carrying their own unique and identifiable die stamp with them. If stamps on the daub matched those on the tiles, then this theory would carry more weight: clay walls cannot be mass produced at a centre far from the building site. The stamper has to be present while the walls are still wet enough to receive the pattern. If he has to be on site to stamp the walls, why should he not be on site to make and stamp the tiles?

Match in patternation would suggest that the stamper was not just a tilemaker, but possibly also a builder of some kind. A match in stamps could also be used as evidence to help date wall-plaster which preserved, on its reverse, the imprint of the daub key, with the current dating as regards the tiles being from c. AD 80 to around AD 150 and certainly no later than AD 200 (Lowther 1949; Johnston and Williams 1979; Black 1985).

If daub stamps can be equated with tile stamps then the whole nature of theories concerning tile-stamp firms operating in distinctive areas of Roman Britain will have to be re-evaluated.

Limitations

A problem concerning direct identification now arises: patterns from the same die may not always look similar. It is possible that clay may clog the stamp during its operation, producing what looks, in effect, like a different pattern altogether. Such 'clogging' cannot be predicted. Large quantities of similar patternation have to be carefully studied, to ensure such a possibility is not overlooked. Cracking, subsequent repair and general wear on the dies can also alter the appearance of a design.

Differential shrinkage during the firing process could also make a difference to the patternation. Tile material is fired in the controlled environment of a kiln. The shrinkage it entails during this process is calculable and should not greatly alter the pattern's appearance. Daub will only be preserved if it is partially baked. Such baking, by its very nature, is accidental,

uncontrollable and temperatures attained by it will vary. Further work is needed to study shrinkage rates and their effect on daub patternation, but Ian Betts (pers. comm.) suggests that the shrinkage may, in some cases, be as high as 10%.

Bearing in mind the fact that a direct comparison was out of the question, a study of the stamps on both box-flue tiles and clay walls was conducted in November 1986 (Russell 1988) to see if any similarities were evident and how closely the daub patternations could be fitted into Lowther's Nine Tile Groups. Ernest Black was generous enough to allow access to the Relief Patterned Tiles Research Group's corpus of tile drawings so that all the known daub patterns could be compared to those on tile. Any new tile or daub stamps found after November 1986 do not enter into this discussion.

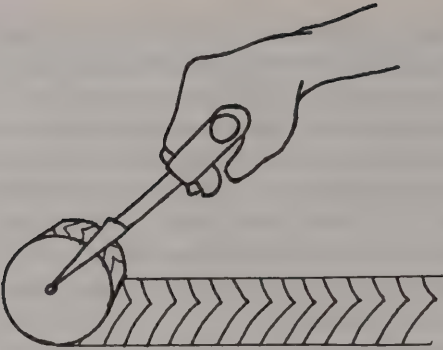
Results of the Comparison

For the comparison some 97 tile die types (dies 1-16, including dies 5A and 16A, dies 18-50, 53, 55-75, 77-97, 99 and 100) were used and compared to the stamped daub from 20 British sites (Lullingstone, Springhead and Richborough, Kent; Verulamium (Insula XIV and XVII) and Baldock, Hertfordshire; Colchester (Lion Walk), Mucking, Billericay, Gestingthorpe, Chelmsford and Sheepen, Essex; Silchester, Hampshire; Wanborough, Wiltshire; Fishbourne, West Ashill and Brampton, Norfolk; Wroxeter, Shropshire; Leicester, Leicestershire; Grandford, Cambridgeshire; and the sites at Lombard Street, Fenchurch Street and Lime Street in London.

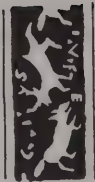
A first point to note is that there are definite die types that are used, or appear, specifically on daub. No examples from Lowther's Tile Groups 1 ('W' Chevron), 2 ('Dog and Stag'), 3 ('Florid'), 4 ('Compass'), 6 ('Billet'), or the varied types in Group 8 ('Addenda') have been yet been found on daub. Patterns on the daub, such as the variations on the 'Greek Key' found at Grandford and Mucking (Figure 9) have no parallel with established patterns on the tile. Neither have the 'Diamond and Lattice' variations on daub from Silchester and London (Figure 8), the curvi-linear patterns from London, Billericay, Wanborough and Chelmsford (Figure 9), the mixture of 'Diamond/Lattice/Chevron' patterning from Springhead (Figure 8), the continuing 'W Chevrons' common to most sites (Figure 9).

Some daub stamps can be compared quite closely to examples on tile: on daub from Leicester and die 46 ('Diamond and Lattice') (Figure 11); Ashill and Lullingstone and die 85 ('Rosette') (Figure 12); Wroxeter and die 38 ('Diamond and Lattice') (Figure 10); Fishbourne and die 43 ('Plain and Chevron') (Figure 11); Sheepen and die 40 ('Diamond and Lattice'). It is also possible that there is a fragment of daub from the Pudding Lane, London, excavations of 1981 impressed with a design close to a 'W Chevron' or one from the mixed 'Addenda' tile group, but this has yet to be substantiated (M. Stone pers. comm.)

Close inspection of these comparable die stamps however, shows that the patterns are 'alike', but they are not 'the same'. Excluding for the moment the Ashill design and die 74 (for discussion see below), the comparable pieces all fall into either the 'Diamond and Lattice' or the 'Chevron' groups. These groups are comprised of many variants but all are essentially simple designs. It would therefore be surprising if, out of these simple and easily reproduceable designs ('Diamond and Lattice' and 'Chevron' are the largest groups), one, two or more designs had a resemblance to one another. So far this resemblance appears only to be superficial.



GROUP 1
W. Chevron
(die 1)



GROUP 2
Dog + Stag
(die 6)



GROUP 3
Florid
(die 9)



GROUP 4
Compass
(die 10-)



(die 46)



GROUP 5
Diamond + Lattice
die 38 die 40)



GROUP 8
Addenda
(die 17)



GROUP 6
Billet
(die 25)



GROUP 7
Rosette
(die 34)



GROUP 9
Plain Chevron
(die 44 + die 45)



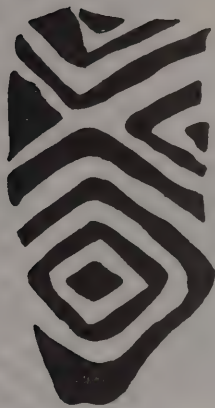
Fig. 7. The process of roller-stamping tile (after Lowther 1949) and examples from Lowthers nine roller-stamped tile groups (Lowther 1949). Not drawn to scale. Grooves blocked.



Fig. 8. Major variants in daub patternation I. 'Diamond and Lattice'. Grooves blocked.



Fig. 9. Major variants in daub patternation II. a: 'W. Chevron'; b: 'Curvilinear'; c: 'Greek Key'; d: 'Rosette'. Grooves blocked.



Leicester



die 46



Wroxeter



die 38



Fig. 10. Comparison of tile and daub stamps I. Grooves blocked.

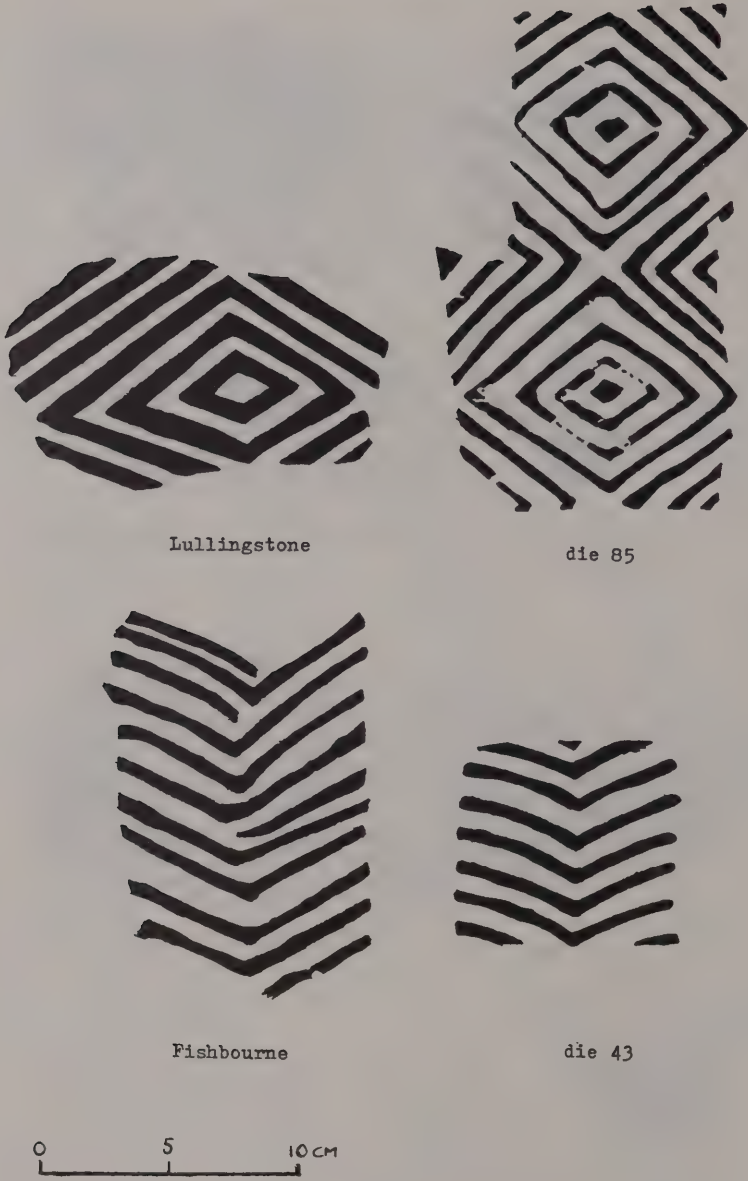
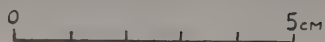


Fig. 11. Comparison of tile and daub stamps II. Grooves blocked.

Ashill (After Gregory 1973).



Die 74, Group 7
(Black, Pers. comm.)

Fig. 12. Comparison of Ashill daub pattern and that of Die 74, Group 7.

Another factor gained from the comparison is that the ridge and groove patternation on the clay appears generally larger than that on the tile (despite the fact that the daub may have shrunk more from its original state than the tiles during the firing process). The average width of grooving on the tiles is from 1-6mm, whilst the variant on daub is 5-12mm. Ridge width is, on average, for the tile between 3-10mm, whilst on the daub material it is 6-14mm. Die size is also generally smaller on the tile. Die 79 ('Diamond and Lattice') for example, is approximately 6 x 5mm in width with 1-2mm grooves separated by ridges 3-5mm and as such it would be ineffective for keying large areas of daub wall. Likewise clay wall dies used at Fenchurch Street, London, with grooves measuring 7-12mm and ridges 8-14mm are too large to be used with much success on tiles.

Patterns on daub can be equated with patterns from Lowther's Nine Tile Groups, but so far not one single die used on daub walls can be directly related to a die used on a tile. Future finds and work may prove this conclusion to be incorrect, but at the moment the weight of evidence suggests that the stamping of daub and tile were two separate and distinct areas.

Can Any Daub Stamp be Seen as Decorative?

If there is no match between stamps on daub and tile, can a different purpose be postulated for the patterning of daub walls? The tiles were stamped to provide a key for wall plaster. Can the practice of daub stamping be seen as purely functional, or was there a decorative aspect to it?

On occasions I have used the term 'keying' to describe the impressed pattern on the daub. Such a term implies a practical use behind the patternisation: the roughening of the surface of the clay walling sufficiently for it to retain plaster. This aspect of the stamping has recently been called into question, most notably by A. Gregory (1973) in his article on the daub from Ashill, Norfolk (TF 909058) which he regards as decorative. Crummy (1984) and Rudkin (1986) have asked whether the stamped daub from Colchester and Fishbourne was intended to be seen. Absence of mortar on stamped daub from the Forum site (Marsden 1987) and Mucking (Evans, pers. comm.) has prompted the suggestion that the pattern was not functional, whilst elsewhere stamped daub is described as "decoration" (Betts 1983; Wickenden 1983), or "ornament" (Green 1973) or is even equated with the Medieval practice of "pargetting" (Stead and Rigby 1986). Is there a simple answer?

Case Study

Ashill, Norfolk (Figure 12) is very different from all other known examples of stamped daub in that its pattern is comprised of lozenges and circle motifs instead of the more usual chevron or diamond combinations. Gregory (1973, 354) believed that some care had been taken to set the circular motifs within the rectilinear lozenge patterns. He noted that there was no sign of stamp overlap and suggested that an area of groove elaboration on one of the daub fragments was an attempt to imitate stone-moulding. He concluded that if the builder had wanted just to 'key' the daub wall he would have done better to slash or comb the surface. The designs surviving on the daub fragments were therefore to his mind purely decorative and the traces of 'pink plaster' found on one daub fragment were the remains of a 'repair' to an area of damaged design.

A few points should be made about this article as no reply has been made to it since 1973. The first argument Gregory makes against the daub pattern being functional is that it is a more complex pattern than on the daub fragments found at Verulamium (Frere 1972, 160-1), and shows no sign of stamp overlap. A point to realise about the lack of "awkward overlapping" is that the six pieces from Ashill being studied are small (approximately 10cm square). On none does the die pattern appear more than once. Any pieces that may have shown overlap have not survived. It must be noted that there are samples of roller stamped chevron tiles where the same pattern has been applied twice without signs of overlap. This does not imply that these tiles were meant to be seen, merely that the stamper was careful in his application of the die. At Verulamium none of the stamped daub fragments show signs of "awkward overlap" and yet all had clearly been covered with a layer of plaster (Frere 1972, 160).

If one looks at examples from Lowther's Nine Tile Groups (Figure 6), one can see that some of the impressed patterns were of a very elaborate nature. Designs such as those in Group 4 ('Compass'), Group 3 ('Florid'), Group 7 ('Rosette'), Group 1 ('W Chevron') and, more specifically, Group 2 ('Dog and Stag') had, for many years before Lowther, been taken as proof positive that these tiles were meant to be seen not covered over with plaster. The belief was that no-one would go to the lengths of making a die with such an intricate pattern, if that pattern was merely to act as a key.

Lowther (1949) squashed the 'decoration' idea with a few hard facts. Firstly the roller stamped flue tiles, when placed in situ, only butted end to end. If no plaster had covered these tiles, then the fumes and smoke conducted by them from the underfloor heating system would have entered the living room. Secondly, designs such as the 'Dog and Stag' (Group 2), although apparently decorative in nature, could only be viewed when lying horizontally and this was not their position in use. Lowther summed up that the purpose behind the patterning on the tiles could only have been to provide an uneven surface or key onto which mortar could adhere. The difference and elaborations in die design he explained were necessary to identify the work of an individual workshop or craftsman (Lowther 1949, 6). Looking back at Figure 12 one can see that the Ashill daub is certainly less decorative than the functional tiles of Groups 2 and 3. Gregory's first point that the Ashill daub patterns are too elaborate to be functional falls apart under an argument made 15 years previously.

Gregory explains the complex design of the Ashill daub as an attempt to imitate a type of stone moulding. The patterning, however, appears to relate quite closely to the tile patterns of Lowther's Group 4 ('Compass') and Group 7 ('Rosette') (Figure 6). On Figure 12 are the results of a comparison of dies from these groups with that of the Ashill daub (Russell 1988, 45, 51). The best comparison is probably with the fragment of die 74. The patterns are not exactly similar, but with the size of grooving, circles and lozenges of the Ashill example exactly matches those of die 74 - could Ashill have been roller stamped? Bearing in mind that die 74 was intended to act as a key for plaster, why should the same explanations be hard to swallow for Ashill and why should an elaborate theory such as imitation stone moulding be in any way acceptable?

The third main argument used against the pattern at Ashill being functional is that slashing and combing the surface of the daub would be as efficient and quicker to execute than roller stamping. Let me state here and now that slashing and combing is by no means as efficient a method for keying a clay surface and it is certainly not quicker. A roller may be time consuming to make, certainly if the pattern is elaborate, as on die 74, but once made all that has to be done to reproduce the pattern on clay is to run the roller over it once. Large areas of walling can thus be keyed in minutes. Cutting individual grooves with a knife or trowel (or five grooves at a time with a comb), is not only a far more lengthy process, but also a less productive one: the grooves are narrow and seldom break up the surface as efficiently as the deep consistent ridges of the roller stamp.

The fourth point, that the areas of plaster on one piece of daub from Ashill may be repair to a weathered wall or a 'pink wash' to allow the pattern to show through is another case of the 'Occams Razor' argument: "Why look for a complicated answer when a simple one will do?" The simple answer is that the 'pink deposit' is probably the remains of wall plaster or mortar which was destroyed under the same conditions which preserved the daub: that of fire. (An explanation for the complete lack of plaster traces on stamped daub is given below in Part iii).

The main arguments given for the daub patternation at Ashill being decorative do not stand up to questioning. Problems can often arise with interpretation if the simplest theories are ignored in favour of the more interesting, if unlikely ones, as here that the daub was decorated in a way to imitate stone moulding. I am not saying that the functional key idea is in this case definitely right, only that it is by far the likeliest, be it the less exciting theory.

Pargetting: A crime of relevance

One term that should be analysed before continuing is the term 'Pargetting' used by Niblett (1985), Gregory (1973) and Jones (1974). What is Pargetting? The Concise Oxford English Dictionary (Sykes ed. 1979) describes it as wall plaster with an ornamental design. Alec Clifton-Taylor, in his book 'The Pattern of English Building' (1972) further elaborates by stating it is a form or ornamental external wall covering, Medieval in date and largely confined to the Eastern Counties of Britain.

It must be clear that to compare patternated or keyed daub with a type of Medieval ornamental exterior plaster is an entirely fanciful thing to do. The term has also been applied to describe pieces of stamped mortar from Baldock, Hertfordshire (TL 253340) (Stead and Rigby 1986). The Baldock fragments may seem similar to this ornamental Medieval plaster, but to associate two types of material for buildings of varying scales, made for possibly different reasons (decorations or key) by people living under totally different social conditions and different administrative hierarchies with totally different values and beliefs on a time scale separated by over 800 years, purely by the reason that they look alike, is at best misguided. If it can be proven that the Baldock material, and indeed any of the stamped daub material in this article, formed part of an ornamental, exterior wall design, then at best it can be referred to as a 'precursor' of Pargetting. At the moment, however, it cannot and so the word 'Pargetting' should not enter into any discussion on Roman patternated daub.

Were the daub patterns meant to be seen?

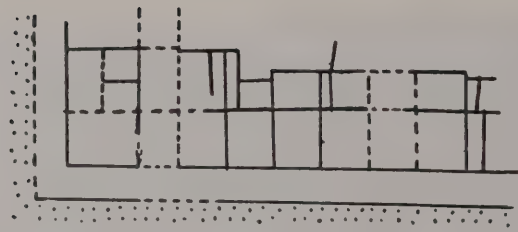
The interior walls of Building 8, Lion Walk, Colchester, were keyed in an apparently unnecessarily elaborate manner (Figure 3) (Crummy 1984). Strips or roller stamped pattern are here separated from a higher panel of diagonal trowel marks by horizontal string lines, which suggest it was designed to be seen. Despite this the pattern was later covered with plaster, proving that, however visual in design, the pattern still functioned as a key. At London (Fenchurch Street) and Verulamium (part of Insula XIV) less elaborate key patterns appear never to have received a layer of plaster (Marsden 1987, pl. I; Frere 1972, 73). This led Marsden in 1987 to suggest that the Fenchurch Street daub should be regarded as decorative.

A crucial point is being missed here. The buildings excavated by Frere at Insula XIV, Verulamium (Frere 1972) and interpreted as shops, were roofed and planned as a unit (Figure 13). At London three parallel buildings, again interpreted as shops, were found to share an internal north-south wall line for a distance of over 31 metres (Figure 13) suggesting they had been planned as a single development (Marsden 1987, 19ff). The individual rooms in the Verulamium block appear to have developed differently, some as workshops, stores or smithies and a different level of decor was attained by each (Frere 1972, 12). From this Frere postulated that shops in a building held by single ownership (central government, municipal authority or tribal landlord) had been hired out to tenants. A similar arrangement can be suggested for the 'block-built' shops at Fenchurch Street, London, though the evidence at Colchester is perhaps more difficult to interpret (Crummy 1984, 40).

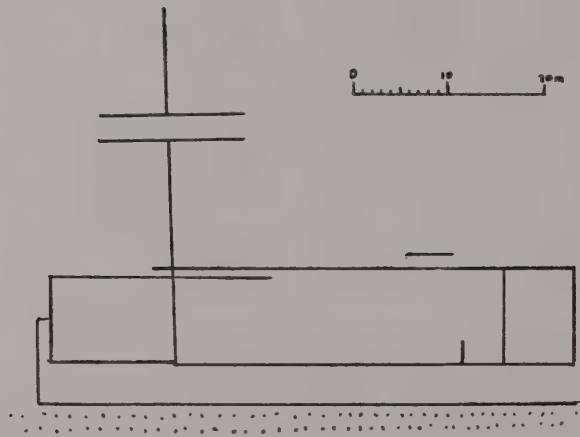
If the buildings described above were built in a block by a planning authority to be hired out to individuals, thus the chance that a later tenant would want, or could afford, to have his shop plastered was an eventuality which would have to be catered for at the outset. Plaster may be applied to walls of stone at any time, as long as the stone surface is first roughened by "pecking" it with a pickaxe. "Pecking" is not possible on walls made of wattle and daub as they would be partially demolished in the process. Daub walls can only be successfully plastered if they have first been keyed (by stamp, trowel or comb), and keying is only possible where the daub is still wet. In other words keying can only be undertaken during the primary building process.

Plastering of the shops (or indeed of any other structure built of wattle and daub) can therefore be seen as an 'optional extra'. Lack of plaster on the patterned daub may now be explained - the later owner could not afford the time or the money to have his rooms plastered. The possibility that the keyed walls may be left exposed for some length of time before plastering was evidently realised at Colchester where an attempt was made to make the purely functional key more visually pleasing (Figure 3).

Taking all this into account the word "decorative" should be removed from all discussion on stamped daub even if it can be shown that the daub in question never received a plaster coat or received instead a layer of whitewash (as has been suggested for the Ashill daub (Gregory 1973) and the Baldock mortar (Stead and Rigby 1986)).



a. Verulamium, Insula XIV. (After Frere 1972)



b. London, Fenchurch Street. (After Marsden 1987)

c. Colchester, Lion Walk.
(After Crummy 1984)

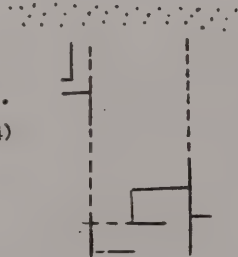


Fig. 13. Plans of the pre-A.D. 60 buildings.

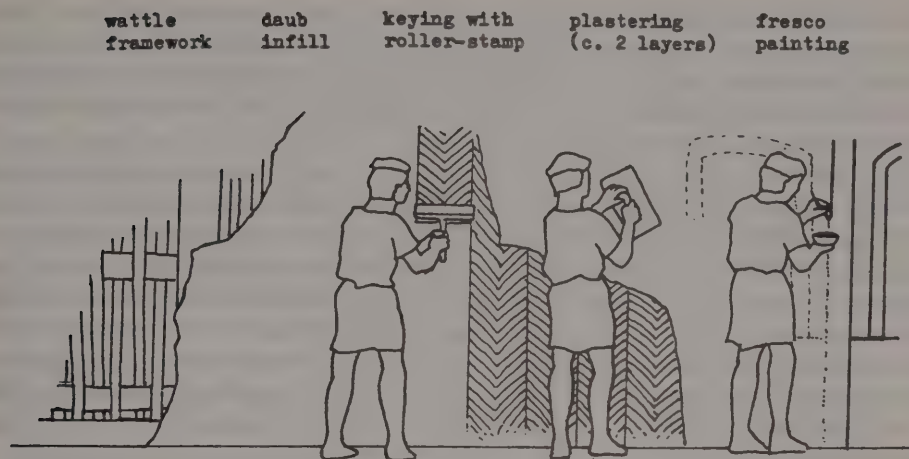


Fig. 14. From wattlework to plastered room : the proposed model.

Hereafter stamped daub should only be referred to as “decorative” if it can be positively proven that the pattern on the materials would not retain plaster if plaster were applied. The fact that the occasional attempt was made by the stamper to make daub keys more pleasing to the eye, not knowing for how long the key would remain exposed before the new owners desired wall plaster, does not alter the fact that the idea behind the stamping was purely functional.

The Dating Evidence for the First Daub and Tile Stamps in Britain

A.W.G. Lowther was the first to comment on the possible origins of tile stamping in Britain. He stated that finds of ‘W Chevron’, ‘Diamond and Lattice’, ‘Florid’, ‘Billet’ and ‘Plain Chevron’ groups in association with Flavian material suggested a date range of c. AD 80-100 as likely for the beginning of roller stamping (Lowther 1949, 7ff). Rodwell (1978) and Johnston and Williams (1979) have agreed with this theory, while Black (1985, 356) has cited the tiles from the refitting of the Neronian ‘proto-palace’ baths at Fishbourne c. AD 75-80, as being the earliest examples of roller-stamped tiles in this country. Certainly no examples have yet been found in contexts earlier than AD 75. This date range contrasts markedly with the evidence for the stamped daub.

As already stated, there are two sites in Britain where roller-stamping on daub can positively be proven. The timber building at or near the harbour site of Fishbourne, West Sussex, has been dated to c. AD 75 on the basis of late first century pottery and two unworn denarii of the emperors Galba and Vespasian (AD 68-9 and AD 69-79 respectively) (Rudkin 1985). The daub material here then is roughly contemporary with the first examples of roller stamped tile found barely a quarter of a mile away at the ‘Proto-palace’ site (Cunliffe 1971). At Colchester the pieces of

roller stamped clay are from destruction levels dating from the Boudiccan Revolt of AD 60/1 when the entire town was fired (Crummy 1984). As for its original construction date, archaeological evidence has shown that the defences of the legionary fortress at Colchester were being levelled c AD 50 and the civilian buildings, including Building 8, Lion Walk, were put up shortly afterwards (Crummy 1984, 37).

Three other sites producing stamped daub material from contexts of similar date to the Colchester examples are Sheepen Hill, Essex (TL 9925), Verulamium and London.

The Sheepen Hill excavations (Niblett 1985) 0.75km northwest of Colchester, revealed an extensive industrial area apparently manufacturing a range of products for the new town. The stamped daub material came from two structures dated by Niblett to c. AD 49/50. This date was also given by Frere (1972, 12, 20) to the construction of the Insula XIV shops with keyed daub interiors at Verulamium. Patterned daub from Lombard and Fenchurch Street (Marsden 1987) and Lime Street (Betts, unpublished) in London came from buildings dated by Marsden (1980, 20) and Merrifield (1983, 41) to the early/mid 50's AD. All three sites, Sheepen Hill, Verulamium and London were destroyed in the AD 60/1 revolt.

The daub material from London, Verulamium and Sheepen cannot positively be acknowledged as roller stamped due to its fragmentary condition, but is sufficiently similar in patternation size, type and date to the roller stamped material from Colchester, as to warrant its probable inclusion as such. Whatever the case, the crucial point is that large quantities of stamped daub material has been found in contexts some twenty five to thirty years older than the earliest known examples of roller stamped tile.

Conclusion: Proposed Model

Roller stamped tiles were once thought to be a solely British phenomena, but the location of stamped tiles at the Saalburg in Germany and associated sites on the Rhine frontier in recent years (Betts, pers. comm.) has shown this not to be the case. As yet the material is unpublished and undated but Ian Betts has suggested a second century date for them—ie later than the British examples.

Stamped daub has also been found on the Continent, but again there is a lack of clear dating evidence for it (Russell 1988, 57-67). Of material found at Hofheim, Germany (Ritterling 1914, 43), Ehls, France (Hatt 1968, 418), Braives, Belgium (Brulet 1981, 188) Kastel Pforing, Germany (Fink 1914, 23) and the mortar material from Strasbourg, France (Barbet and Allag 1972), the earliest appears to be that at Hofheim, c. AD 40-90 (Russell 1988, 62). This could make it contemporary with if not slightly earlier than, the British Examples. Whatever the case the Continental stamped daub does not appear to exist in such large concentrations as the British Examples. Why should this be so?

It is my belief that it was the huge civilian construction projects in Britain following the removal of the military in the south-east lowlands c. AD 50 (Tacitus), 2, XIV, 14; Crummy 1977; Frere 1972; Marsden 1980), which developed and expanded the use of the keying stamp

from possible small scale European beginnings. In other words, the roller stamp was a constructional tool which was developed, perhaps today we would 'marketed', especially for use in the large building schemes of the new province.

Great areas of new housing, built substantially in wattle and daub, needed decoration in the Roman manner, and this would mean daub walls having to be keyed during the initial building phase to allow for the later addition of plaster. Keying these vast areas of wall space by simple scoring or combing methods could prove laborious and timeconsuming. Keying with a roller stamp; running the pattern out in a series of continuous vertical strips, would not only prove quicker, but the deep regular grooving of the stamp designs would break up the clay surface more effectively than a series of shallow and comparatively thin trowel cuts. An added bonus of the roller die was that the strips of regular, repeated patternation would have a more visually pleasing aspect (rather like rolls of wallpaper with the same floral design repeated continuously in strips), than random trowel cuts. These strips of stamp design could then be left, or merely whitewashed over, until the later owners could afford to call the plasterers in (Figure 14).

Outside Britain no such large scale 'building schemes' built substantially out of wattle and daub were conceived at or after this date, so perhaps we should not be too surprised to find a general lack of similar stamped material. In Britain, once the major urban areas were built, the need for making and using large roller dies probably began to diminish. After c. AD 200 we find no examples of stamped daub in this country. It may be that the material is not being preserved in the archaeological record, but it may be significant that any new major building schemes are conducted substantially in stone and not in wattle and daub. Daub material, such that it exists from third century contexts like Chelmsford (Wickenden 1983) appears to be either unpatterned or scratched.

If the daub roller was a constructional tool belonging to a building firm, how does this affect theories of 'stamped daub' and 'stamped tile' industries? It has been shown that not only do stamped tiles appear to post date stamped daub by c. 30 years, but also, in most cases, the tile rollers were smaller and more intricately patterned than their daub counterparts. Would it be stretching the evidence too far to suggest that tile roller dies were a development from roller stamps used originally to key daub walls and that tile makers, operating in southeast Britain, were the first to develop the idea of stamping tiles with smaller versions of the roller-die, during the early 'official' building projects like Fishbourne 'proto-palace' (Black 1985; Cunliffe 1971) before expanding and producing work for other civilian and private building projects?

This theory would explain why roller stamp tile patterns diversified and, in some cases, become very intricate: they were products from new firms of tile makers who wanted to distinguish their work from other, established firms. Daub stamps changed very little from a basic pattern as stamping clay walls was only a minor part of the building industry and while stamped tiles could be advertised or sold in a produced form, the pattern form for clay rollers was not important as daub walls could only be keyed once the building firm in question had already been employed.

No tile stamp patterns securely match any on daub. One is a specialized area of tile manufacture, while the other is a constructional technique developed for keying clay walls. It is therefore probably better to view them as two similar practices (keying material for the later application of plaster), that on tiles having evolved from that on daub, but practices which belonged to two separate and distinct industries.

Johnson and Williams (1979) ended their articles with a plea for more research into relief patterned tiles so that the dating and organisation of the Roller Stamping Industry could be resolved and I would like to end mine with a similar request. It is clear that daub stamping cannot any longer be considered as a side-branch of the roller stamped tile industry. It is hoped that this work will provoke further study into areas only touched upon here: (Continental material especially). Perhaps it may be even possible to reconstruct and test a roller stamp on a daub wall in the near future. It is clear that considerable evidence of keying patterns, preserved on the reverse of fallen wall plaster, has gone unremarked. If anything I hope this article will ensure that such important evidence will at least, in the future, be more adequately recorded.

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Iron Age Crop Storage and Ceramic Manufacture in Rural Mesopotamia

A Review of the British Museum Excavations at Qasrij Cliff and Khirbet Qasrij in Northern Iraq

by ST. JOHN SIMPSON †

Introduction

In 1983 the British Museum re-commenced a series of excavations in Assyria under the direction of Dr. J.E. Curtis and, at the invitation of the Iraqi government, within the Saddam Dam Salvage Project associated with the construction of a new storage dam on the Tigris north of Mosul. Six sites in this Project were sounded by the British Museum between 1983 and 1986. The first two of these sites to be excavated, which date between the eighth and sixth centuries B.C. (or within the Late and post-Assyrian periods) and which are quite different in nature, have now been published together in the form of a 'final report' (Curtis *et al.*, 1989). These two sites are reviewed separately below.

Qasrij Cliff

Outline of the Archaeological Evidence

The site excavated at Qasrij Cliff consisted of a single, partly eroded but probably originally circular, pit with vertical sides and flat bottom. It was filled with a sequence of mainly ashy layers containing what appeared to be a homogenous collection of fragmentary Late Assyrian ceramics, with some animal bones (a species list is given in the case of both sites by Marie-Odile Saacké/Killick and Keith Dobney) and other finds (iron, glass, ceramic and flint). The ceramic vessel fragments have been tentatively assigned an eighth century date, mainly on the basis of typological comparisons with material excavated at Nimrud and contrasts with the (later) material found at Khirbet Qasrij (see below).

The Ceramic Evidence

A total of 835 ceramic vessel fragments (some joining) were recovered, of which fragments of 171 individual vessels are discussed and/or illustrated, basically according to general form (bowls, jars (including kraters), and bases belonging to vessels of uncertain original shape) in the case of medium plain wares, and ware (fine and cooking). A more detailed breakdown of the overall sherd count is also presented according to excavated context and general fabric appearance as recorded in the field: this should be consulted in conjunction with the appended analytical section on ceramic fabrics (Freestone & Hughes, 1989).

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Seven sherds were exported for destructive analysis and the results of the neutron activation analysis (NAA) and petrographic examination are given here. It is noteworthy that the analytical results indicate that the single cooking ware sherd (No. 81) that was tested may be an import as its composition contrasts with the medium plain wares that were also tested. This conclusion is supported by the differences in ceramic technology between the respective hand-building and burnishing of cooking ware(s) and the wheel throwing of the medium plain (and fine) wares. The widespread movement of cooking wares has been observed elsewhere but this is the first instance where evidence for this probably deliberate trade in cooking pots (rather than their contents), presumably because of the desired properties of fabric, form and surface treatment, has been demonstrated for the Late Assyrian period in Mesopotamia. It raises interesting questions about the local economy at this date.

The "Grain Silo": Function and Disuse

The feature excavated at Qasrij Cliff was provisionally interpreted as a grain silo that was deliberately filled in after use with material brought from an unidentified Late Assyrian site in the vicinity; it is uncertain whether the latter still lay within the Project area, or whether it had been completely eroded away by the Tigris. Similar features are characteristic of Iron Age sites in the Levant and have attracted considerable study there, particularly in Palestine, but this represents the first such example from Mesopotamia to be discussed in its own right.

The recent use of similar features as silos for the long-term sealed storage of grain (either loose in bulk or in sacks), wheat products, fodder, or even possibly other substances such as manure, have been demonstrated from elsewhere in the Near East, and was commented on by many of the nineteenth century European travellers to the region. The effectiveness and limitations of such silos in a Near Eastern environment have been demonstrated by experimental work carried out at Tell Halif in the Shephelah of Israel, inspired by similar studies at Butser Hill in England (Currid & Navon, 1989; Reynolds, 1974). If regularly de-contaminated these silos may remain in use for some years; they are traditionally subsequently infilled purely as a safety measure.

The location of the presumed silo at Qasrij Cliff may be significant: the apparent lack of associated occupation suggests that this feature may have been deliberately dug in an open area – possibly on the top of a low, well-drained, natural rise in amongst fields, as was the practice in recent times in this region. As such, it may therefore represent a facility intended for the storage of extra crop yield over and above normal consumption, which would otherwise be stored within the settlement. The apparently cylindrical (rather than bell-shaped) pit profile may represent a tradition derived from ease of digging in the local subsoil; bell-shaped underground silos are as yet only first archaeologically attested from the Hellenistic period in Mesopotamia.

The deliberate infilling of this silo with cultural material – a practice observed also in the case of a possible well excavated at Tell Aqab in north-east Syria (Peltenburg, 1981) – may be a by-product of a systematic attempt to increase soil fertility through the use of artificial fertilizer, in this case domestic refuse (or night soils) carted in from a nearby settlement. This agricultural practice is suggested to date back to at least the third millennium in parts of the Near East and is suggested to have been most widely used either at times of maximum population or maximum

urban development (Wilkinson, 1989). It is interesting to note that the date of this silo, as suggested by the ceramics in the fill, would accord with the Late Assyrian intensification of rural settlement evident from the stele of Adad-Nirari III (810-783 B.C.) found at Tell al-Rimah (Page, 1968) and informal archaeological surface observations made elsewhere in the 'Afar-Sinjar plains (Postgate, 1974).

Khirbet Qasrij

Outline of the Archaeological Evidence

Khirbet Qasrij consists of a dense surface scatter of potsherds, baked bricks and disturbed stone wall-footings, stretching almost five hundred metres in length, and situated a short distance south of Qasrij Cliff. Five soundings were excavated here, and in situ architectural remains were found in four of these. One of these soundings, situated near the eastern edge of the site, was later expanded into a larger trench. The sunken clay-lined firebox of a simple updraught pottery kiln was found there, situated within a complex consisting of a partially stone-paved courtyards and alleys, small rooms and low stone platforms.

Only one construction phase was found in each of the excavated areas; the ceramics from each appeared to represent a uniform assemblage, in turn contrasting with that from Qasrij Cliff, thus seeming to exclude the possibility that these sites were contemporary. The entire site at Khirbet Qasrij is dated on the basis of the ceramics and a stone duck-weight to the early sixth century B.C., or within the historical and archaeological "dark age" of the so-called post-Assyrian period following the political collapse of the Late Assyrian empire. Current excavations at Balawat, Nimrud and elsewhere, and further research on Late and post-Assyrian/Achaemenid ceramics, may revise upwards this suggested dating but the importance of the site (whose original name is unknown) is clear from its size.

The Pottery Manufacturing Complex

The main archaeological importance of Khirbet Qasrij lies in the pottery manufacturing complex partially excavated at the eastern end of the site. Near Eastern ceramic studies have hitherto been dominated by typological studies based on decoration or form although increasing attention is now being paid to ceramic technology, function and patterns of discard. However, the original places of ceramic manufacture have so far received relatively little systematic attention beyond the noting of kiln remains. Several authors have discussed the different types of excavated kiln (critically reviewed by Majidzadeh: 1975-1977), but a general lack of published details about the fine stratigraphy and wasters has hampered these studies.

The Khirbet Qasrij report now brings into focus a range of new evidence for pottery production, which may usefully be considered by the following topics: kiln construction and use, fuel requirements, firing problems: the ceramic evidence, and workshop location. A spatial analysis of the pottery manufacturing complex, based on the architectural and artifactual evidence, is also attempted here.

Kiln construction and use. The sinuous plan of the Khirbet Qasrij kiln firepit may partially reflect sagging through repeated firings (perhaps leading to its eventual abandonment), but is far more likely to represent an original design feature associated with the partial separation of

the firemouth (next to the stokehole) from the actual firepit (directly beneath the firing-chamber). Similar features were observed in the case of the approximately contemporary kiln fireboxes found at Tell Abu Dhahir, another site within the Saddam Dam Salvage Project and partially excavated by a British Archaeological Expedition to Iraq team directed by Warwick Ball (Simpson, forthcoming), and Tell Al-Fakhar, Level I (Al-Khalesi, 1977: 11 - 12, Figs. 4, 35-37). This distinctive irregular bathtub-like plan does not necessarily correspond to that of the firing-chamber above however. Given that the stokehole end of the Khirbet Qasrij firepit probably strictly represents the firemouth, thus roofed separately from the firing chamber itself, it seems likely that the firing-chamber was confined to the opposite end and would have measured a maximum of approximately 1.30 x 1.10 metres. (This is therefore shown as such on the accompanying figures: Figs. 1 and 2).

The squarish plan of the actual firing-chamber—if this reconstruction is correct—contrasts with contemporary circular kiln plans from Tell Michal in Palestine, which were apparently only used to fire large storage jars (Herzog, 1989: 102, Fig. 8.13 - 14). As different kiln types or firing methods may be employed to produce different wares, shapes or sizes of ceramic vessel, it is possible that these Late and post-Assyrian kilns from Mesopotamia instead represent the prevalent local Iron Age type used to fire small and medium-sized wheel-thrown plain wares, judging by wasters found in the firepit fill at Khirbet Qasrij (but see below). Their small size implies that they were not used in the simultaneous firing of large quantities of ceramics that is generally associated with mass production. They should probably rather be seen as serving more modest and local needs.

The collapsed and dismantled remains of the perforated clay grate originally separating the firepit from the firing-chamber above were found inside the kiln at Khirbet Qasrij. The springing of the upper walls on either side of the firepit suggests that the grate originally formed a vault but the top of this (i.e. the floor of the firing chamber) would almost certainly have been flat (and not arched as on the published reconstruction).

The firing-chamber walls of this—as with most other excavated Near Eastern — kiln(s) have not survived beyond a low stump as they either completely collapsed or were deliberately dismantled after firing. The relatively small quantity of burnt brick in the upper fill of the Khirbet Qasrij kiln firepit suggests that the superstructure did not consist of a permanent clay dome — as usually implied in the archaeological literature— but may instead have consisted of a temporary clay and straw dome or a low, open-topped, permanent stack that was only capped at times of firing, perhaps with piled up potsherds as in the case of certain Egyptian and Cypriot kilns today (Nicholson & Patterson, 1985, 1989; London, 1989: 221). The latter would thus leave few recognisable traces when dismantled but would provide an explanation for the higher concentration of potsherds—many of which were not overfired and thus do not seem to represent discarded wasters— found in the immediate vicinity of the kiln at Khirbet Qasrij.

No evidence for deliberately made kiln furniture was found at Khirbet Qasrij, but this is not surprising given that this is a typical feature only of glazed and stoneware production. The vessels were therefore presumably simply stacked on the grate, perhaps with sherd separators as several isolated potsherds were found within the firepit (London, 1989: 221; Rye & Evans, 1976: 47, Pl. 35d).

Fuel requirements. The type of fuel used to fire the kiln at Khirbet Qasrij is unknown. Given the small size of the firemouth and firepit, it is unlikely that solid (wood) fuels were used (Rhodes, 1968: 60-61). Brushwood has been suggested but dung cakes are a plausible alternative as they produce a good even ascending heat and may have been more readily available in a rural economy that included the keeping of livestock. Future analysis of the exported sample of the ashy primary fill of the firepit may provide an answer. However, almost anything combustible is ethnographically attested and fuel preference probably varied according to immediate availability or cost: the latter is traditionally the single largest consideration in ceramic production (Norsker, 1987: 63 - 70).

Firing problems: the ceramic evidence. Pottery wasters are generally taken to be the primary evidence for on-site firing of ceramics, but they are strictly only evidence for those forms or wares that the potter was experiencing difficulties with in firing and/or relatively easily produced types that were stacked with less concern over whether they would suffer damage at this stage (Musty, 1974: 59 - 61). Wasters need not therefore actually be very abundant, particularly as potters (like glassworkers) also tend to keep their firing areas relatively clear of extraneous debris, and discards may have been either swept away and/or re-used. The range of potential uses of broken or wasted ceramics has been outlined by London (1989: 221). At Khirbet Qasrij potsherds were found lining the floor of the oven excavated a short distance east of the firing area – possibly chosen because of their heat-retaining qualities; this practice is also archaeologically attested from Susa (Carter, 1980: 15) and has even led to the deliberate stripping of potsherds from the surface of sites (Mellaart, 1981: 133).

At Khirbet Qasrij ceramic wasters were found both within the filled-in kiln firepit and in the area immediately to the north (Square A3). They belonged to medium-sized jars, carinated bowls, bowls with thickened and inverted rims, and partially dung-tempered, burnished, shallow tripod-footed platters – which appear to be skeuomorphs of metal vessels (perhaps sauce bowls). It is uncertain, however, whether these wasters actually derived from the kiln in which they were found: the study of recent potters' practices illustrates the manner in which old disused kilns are sometimes used to contain the sweepings-out from nearby kilns still in operation. This was indeed suggested to be the case at Tell al-Fakhar (Al-Khalesi, 1977: 11). The fact that only one kiln was found at Khirbet Qasrij is inconclusive as others may have been located outside the excavated area. (At least two were located in one area of the site at Tell Abu Dhahir: Simpson, forthcoming). Finally, it should also be noted that other, undistorted, potsherds from the upper fill of the kiln firepit may, as mentioned above, have derived from the roof construction, been used as pot separators during firing, or been swept into the pit after



Fig. 1. Location Map.

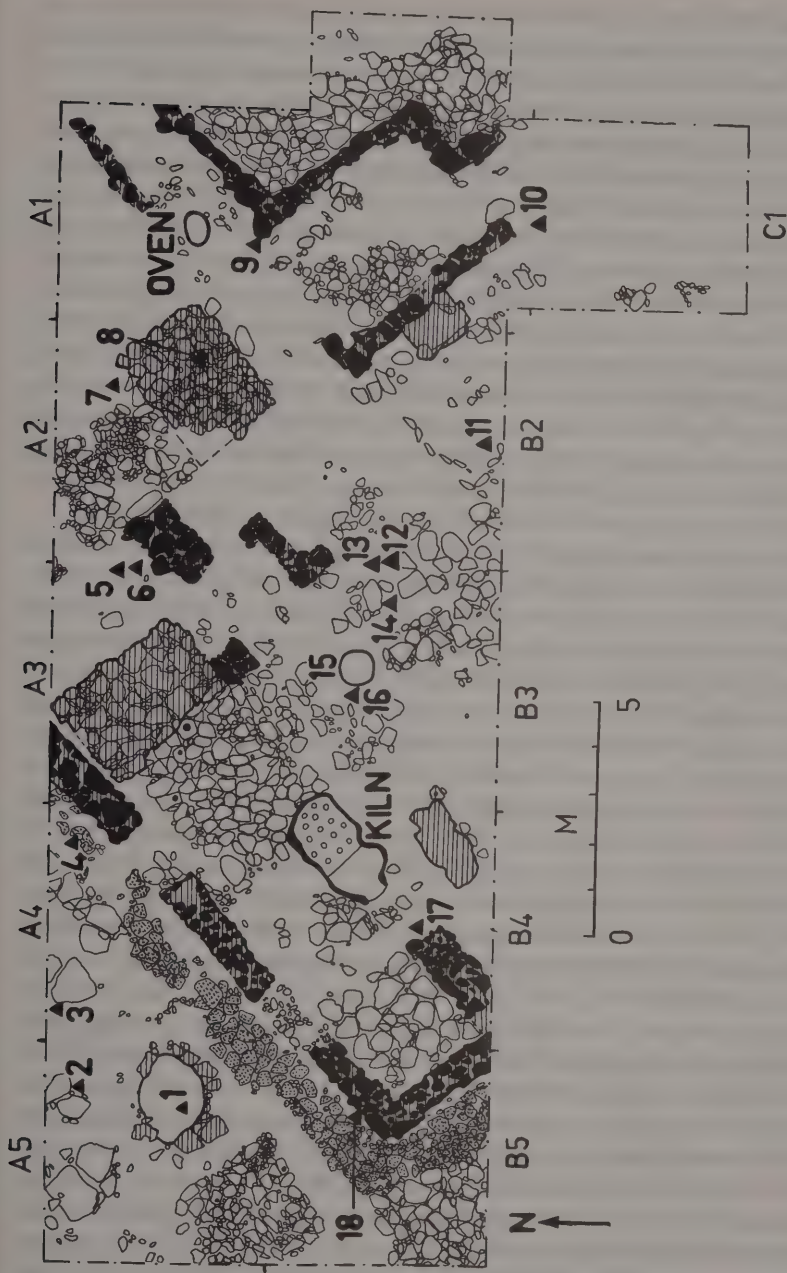


Fig. 2. Khirbet Qasrij: the main excavated area

1, iron object; 2, iron object; 3, glass vessel; 4, ceramic wall-nail; 5, grinder; 6, grinder; 7, iron weight(?); 8, ceramic wall-nail(?); 9, grinder; 10, 'Egyptian blue'; 11, iron blade; 12, loom weight(?); 13, loom weight(?); 14, stone tripod-vessel; 15, pot; 16, duck-weight; 17, glass bead; 18, shell bead.

dismantling of the superstructure. These sherds cannot therefore be assumed to be on-site products, particularly as NAA and petrographic examination indicates the definite presence of imported ceramics at the site (see below: *The artifactual evidence: the ceramics*).

Workshop location. The location of this pottery manufacturing area near one end of the site at Khirbet Qasrij is significant. Although this may partially reflect a desire to keep potentially noxious and flammable firing processes as near to the edge of the occupied area as possible, the main factors traditionally sought after by potters themselves are proximity to clay and water sources and a main road thus facilitating direct access to necessary raw materials and the potential export of the finished products. Clay and water were probably obtained from the adjacent wadi and/or Tigris, and it is likely that there was originally a track leading east from the site in the direction of the Assyrian heartland between the Tigris and Greater Zab rivers. (Fine-quality clay was recently noted in this wadi and used by David Tucker to make a number of simple handmade objects, then fired in an improvised kiln constructed in the grounds of the temporary B.A.E.I. dighouse at Babneet, but it is possible that this particular clay seam only became exposed in recent wadi downcutting). The other main desirable factor in pottery workshop location – shelter from strong or variable winds – was evidently achieved at Khirbet Qasrij by placing the kiln within a partially enclosed (but presumably unroofed) area.

The Late or post-Assyrian kilns found at Tell Abu Dhahir and Tell al-Fakhar were similarly located near the edge of the occupied area (Simpson, forthcoming; Al-Khalesi, 1977: Figs. 1, 4), and a separate Late Assyrian industrial area has recently been investigated between the Sin and Mashqi gates in the north-west corner of the walled city at Nineveh (Wilkinson & Matthews, 1989: 259; Operation NWM). “Major Late Assyrian buildings situated near a potters’ workshop with a courtyard and associated kilns” have been reported from more recent salvage excavations carried out at the site of Mithlai as part of the North Jazira Irrigation Project, but further details are as yet lacking (*ibid.*: 265). The separate location of potters, as well as bleachers, goldsmiths and other metalworkers, is attested from cuneiform sources (Mendelsohn, 1940: 71), and temple bakers and brewers may have been similarly segregated according to a “Craftsmans’ Charter” from Uruk (Weisberg, 1967: 55 – 76; but see also Kümmel, 1979). The Middle and early Late Assyrian name of the Gate of Foundry Workers at Assur may reflect a similar situation there (Dalley, 1988: 97 – 98). This spatial confinement of certain craft or industrial activities may be governed by social as well as economic reasons. There is an additional possibility that craft-sharing was also being undertaken by some individuals: there is certainly textual evidence indicating that metalsmiths did not always restrict themselves to the working of a single metal (Brinkman, 1988: 140, fn. 26). As many traditional (and doubtless ancient) Near Eastern potters only work as full-time potters for part of the year – because of constraints imposed by the rainy season on the dry storage of fuel and the drying/firing of the pots – the remainder of the time may have been spent on agriculture (particularly in the case of rural industries) or other crafts. The seasonally alternative woodworking activities of some traditional Pakistani potters provide an example of this from recent times (Rye & Evans, 1976: 8). In the case of Khirbet Qasrij, the possibility that more than one craft was being undertaken in the area of the excavated pottery manufacturing complex is suggested by the discovery here of a fragment of Egyptian Blue (frit)

– the analysis of which is appended (Tite, 1989). This was possibly intended for use as a source of inlay or pigment (Moorey, 1985: 188 - 193); incidentally, there is no evidence that Egyptian Blue was used to decorate ceramics. However, as the primary stratigraphy was relatively disturbed in this area of the site, it is unfortunately not possible to be certain that such activities were not consecutive rather than just seasonal, and given spatial restrictions the micro-stratigraphy of industrial sites or craft activity areas is likely to be complex (Brassington, 1980; Moorhouse, 1987).

Spatial analysis. These questions lead to the broader problem of how this excavated area of the site really functioned. Two approaches to the problem of functional reconstruction are possible, either through study of the architectural remains or through the artifacts themselves.

The architectural evidence. Although soil formation processes and ploughing eliminated the possibility of tracing mud-brick or tauf walls in the shallow deposits, the straight edges of some of the stone paved areas suggest the former existence of at least some such walls in addition to others placed on stone footings. The overall plan also clearly illustrates that only part of the overall pottery manufacturing complex was exposed; the significance of this is discussed further below.

The paved areas were probably intended as deliberate features to keep the freshly-made ceramics clean and dry on the one hand, and to reduce the excessive trampling and wear of the courtyard and kiln area which are traditionally associated with potters' compounds. The presence of holes in some of the paving-stones probably simply reflects re-use of former sockets rather than in situ emplacements for potters' wheels – particularly as the abundance of stone used in the construction suggests the stone-robbing of earlier archaeological sites in the vicinity. The low stone "table"–platforms may have been associated either with the manufacture of the pots, as described in the case of a recent potters' complex at Kashan in Iran (Caldwell, 1967: 397, Fig. 25:1), and the stacking of the fuel, or with domestic cooking activities as in local villages today (Seeden, 1985 : 294 - 295, Pl. 12 - 15). Similar paved areas were noted on the surface near the Late or post-Assyrian kilns at Tell Abu Dhahir (Simpson, forthcoming). The dual existence of these activities in the main excavated yard at Khirbet Qasrij is demonstrated by the presence of the kiln in the west portion and the oven, cooking ware and sherds and saddle-quern fragments to the east. Given the location of the latter, it is probable that the associated potters' domestic quarters lay nearby, probably immediately to the north or south. (There is no evidence to suggest an upper storey.)

No potters' wheel or other tools associated with ceramic manufacture were identified from the excavations at Khirbet Qasrij. However, the former may have been subsequently removed and re-used, and as other potters' tools are generally made of perishable materials or are unmodified objects/multi-purpose artifacts such as animal ribs, sherds, knives or grinding stones (indeed, each of these categories was represented), their precise original function, if any, may be difficult to recognise (Sullivan III, 1988; London, 1989: 224 - 225). The apparent absence of the presumed clay soaking, treading and mixing areas – found to be quite distinctive in the Phoenician workshops excavated at Sarepta (Anderson, 1987) – is more suggestive. As pottery forming is generally carried out in an area separate from that of the actual firing, it seems

likely that the actual spot(s) of pot building lay in the unexcavated areas of this compound ... perhaps immediately to the west where the top of what seems to have been a stone-lined pit was traced (square A5). (This area also seems to have some evidence for a second phase of stone paving.)

The artifactual evidence: the ceramics. A total of 11,949 ceramic sherds (including semi-complete vessels) were recovered from the five areas excavated at Khirbet Qasrij, of which 98.6% derived from the pottery manufacturing complex. Ceramics thus form the overwhelming bulk of the archaeological artifacts, and care was taken in the publication to present as much of this material as possible. All potentially diagnostic sherds (i.e. rims, bases, decorated pieces) were drawn and catalogued, and the majority of these are illustrated and described according to vessel form. In general, when diagnostic sherds are listed under illustrated examples it means that they were very similar indeed; if there was a doubt about their similarity then they were illustrated. A formal typology was deliberately not invented in the belief that these often confuse rather than clarify the situation. This approach means that it is possible to quantify the exact proportion of any given shape of vessel represented in this area of the site: this should be (but unfortunately often is not) an essential prerequisite of any ceramic processing methodology in that it then allows basic discussion of broader questions relating to site and vessel function versus chronological and regional variations in ceramic assemblages.

Thirty-five sherds were exported for destructive analysis, which form the basis for an important appendix on ceramic technology (Freestone & Hughes, 1989). However, it is important to note that the fabric descriptions made in the field (and used in the published sherd catalogue) do not exactly correspond with those subsequently made in the British Museum Research Laboratory (*ibid.*). This means that it is difficult to use the quantitative data presented on the different vessel fabrics, and illustrates one of the major problems facing current ceramic studies in the Near East (Adams, 1988; Blakely & Bennett Jr., eds., 1989) – particularly in salvage projects where time and money are limited, and long-term storage and study facilities (particularly for bulky materials like ceramics) are minimal or non-existent.

A semi-quantitative record of the relative frequency of different vessel types in the main area excavated at Khirbet Qasrij is presented in the form of a bar chart, similar to that used in a preliminary note on the ceramics from the totally excavated eighth - ninth century Late Assyrian outpost at Yimneyeh on the Euphrates, in the Haditha/Qadisiyya Dam Salvage Project in Iraq (Henrickson, 1984; see also Cuyler Young, Jr., 1983 and Killick, 1988). In both these cases the ceramic distribution pattern suggests functional variability of the different areas – even though the exact original functions of the various vessel forms are unknown. Future systematic comparisons with containers depicted in Late Assyrian and Achaemenid art would be instructive in this respect (Ellison, 1986).

The concentration of cooking ware sherds near the oven in the eastern part of the excavated pottery manufacturing complex at Khirbet Qasrij strengthens the suggestion made earlier that this area was devoted to domestic activities, and supports the idea that tannurs were used for cooking as well as baking in antiquity (Crawford, 1981: 114). Fragments of vertical-sided, flat-bottom, ceramic tubs were also found to be slightly more numerous in this “kitchen” area,

supporting the interpretation of some of these as domestic appliances (perhaps grain bins) prior to their occasional re-use at some sites as coffins in graves; it is unclear whether their original intended function was domestic rather than funerary, however, and one category may represent potters' seconds. In either case, they would originally probably have been fitted with wooden lids judging by evidence from Tell Mazar in the Jordan valley (Yassine, 1984: 29, Fig. 2). One complete glazed jar and seven other glazed sherds were found at Khirbet Qasrij, all but one in the main excavated area: as they form 0.06% of the total surviving ceramic assemblage they illustrate the rarity and probably relatively high value of these objects, a point also noted at Hasanlu (Dyson, Jr., 1989: 123, Fig. 19).

A large proportion of the pottery excavated at Khirbet Qasrij, including finewares and overfired pieces, derived from the area near the kiln. Analytical results indicate that at least two of the fineware vessels (Nos. 275a, 340), both of which were decorated with red or reddish-brown paint, were imports. A third import consisted of a bitumen/asphalt-lined vessel with a pointed base (No. 142). The presence here of ceramic imports thus necessitates caution in ascribing any of the vessels found in this excavated complex as on-site products. Given the otherwise rather anachronistic concentration of sherds near the kiln it is tempting to interpret this group as being the remains of a sherd stockpile deliberately kept for re-use in kiln and oven construction (but not for grog, judging by the petrographical examination and NAA results). The additional possibilities that potters' rejects or unsaleable items are over-represented in the ceramic assemblage from this area of the site, and popular types that could be successfully sold or exchanged are correspondingly under-represented, complicate further evaluation of this corpus. Ideally future excavations of potters' compounds should aim to carefully distinguish between domestic activity and pottery-making areas as the overall "use assemblage" of these complexes may differ considerably from those of other sites or habitation areas.

The typological and technological differences noted between the ceramics from Qasrij Cliff and Khirbet Qasrij not only indicate their differing dates but also point to improvements in potting techniques that characterise the Iron Age in the Near East. If the suggested sixth century post-Assyrian date of Khirbet Qasrij is correct, it is significant that the ceramic assemblage fits within the Late Assyrian tradition of forms. This is perhaps not very surprising given the generally accepted timelag in the Near East between historical developments and their socio-economic effects. It would demonstrate that despite the collapse of the Assyrian empire rural life and technology continued without significant changes, and suggests that post-Assyrian sites or deposits may be difficult to distinguish from those of Late Assyrian date on the basis of only a few selected ceramic "diagnostics". The post-Assyrian "dark age" may therefore partly be a reflection of archaeological ceramic processing methodology on survey and excavation (Adams, 1988). This would help to explain the otherwise rather anomalous presence of some Achaemenid metalwork and other finds at sites such as Nimrud, Khorsabad and Nineveh (Kuhrt, 1990: 186 - 188; Moorey, 1980: 131), where continuing occupation is also to be expected on the basis of the textual evidence (Dalley, 1990), prior to certain re-occupation at Nimrud and Nineveh from at least the third century B.C. onwards. (There is an additional possibility that

these Achaemenid small finds are actually heirlooms used in later periods, however: a Late Assyrian bronze fibula was found at the purely Hellenistic site excavated at Tell Deir Situn, for instance (Curtis, Green & Knight, 1987/88: 52, Pls. 7 - 8)).

The Neo-Babylonian parallels for the duck-weight found at Khirbet Qasrij point to some cultural influences from southern Mesopotamia at this date; Median influence, on the other hand, might also be expected as they are suggested to have then been in direct control of the Erbil area but no archaeological evidence of this has yet been defined from northern Mesopotamia; indeed, archaeological recognition of the Medes is a problem even within Iran (Brown, 1990). Finally, there is also a significant absence from Khirbet Qasrij of ceramic types that are often considered to be typical of the Achaemenid period in Mesopotamia, such as jars or bowls with pushed-out stamp decorated shoulders and "dog-tooth" wedge-stamped impressions, "eggshell ware" and wedge-impressed "husking trays" (Adams, 1965: 130, Fig. 13.10; Fleming, 1989; Zertal, 1989; see also Whitehouse, 1978).

Doubt has already been cast on the Achaemenid attribution or popularity of some of these types following Gibson's (1974) use of coin evidence on his earlier Kish area survey, and the virtual absence of stamped wares or "husking trays" from Achaemenid deposits at Nippur, Persepolis and Susa (*ibid.*; see also Sumner, 1986). The Hellenistic date of these types of stamped ceramics is becoming more generally accepted following the excavations on Failaka and surface finds at Larsa, for instance (Bernard, Gachet & Salles, 1990: 261, 276, Figs. 7 - 8: 152 - 53, 15 - 16: 231 - 32, 152 - 59; Hannestad, 1983; Lecomte, 1989: 133 - 35, Pl. 10: 1 - 3; Simpson, 1988), but in view of the recent publication of further stamped jar sherds excavated at Tell Mardikh VI A and occasional finds in secure Late Assyrian contexts at Nimrud, a gradual development now seems likely prior to their evidently increased use in the Hellenistic period (Mallowan, 1966: Vol. 1, 190 - 91; Mazzoni, 1990: 191, Fig. 1: 16, 19). As mentioned below, more attention should now be paid to possible technological as well as minor stylistic variations between ceramics of these periods ... Although a Late Achaemenid - fifth or fourth century - dating has been recently advanced in the case of similar types excavated by a Swiss expedition (MASI) at Abū Qūbūr in Babylonia, the discovery there of a hoard of nine silver tetradrachms of Mazaious and a drachm of Alexander, all struck between 328 and 311 B.C., indicates that the site was founded or remained in use in a post-Achaemenid phase (Gasche, 1990). Further examples published from northern Mesopotamia, such as from Tell Mohammed Diyab in north-east Syria, derive from poor stratigraphic contexts but are again associated with Hellenistic ceramics - as at Balawat and Nimrud in northern Iraq (Bachelot, 1990: 13 - 14, Pl. 1: 14; Oates, 1958; see also Meijer, 1986: 42, Fig. 25: g - h). The disparity in dating between these examples and comparanda from Syro-Palestine (Stern, 1982: 132 - 36) remains unresolved and a critical re-assessment of the latter is in order.

On the basis of the available archaeological evidence it thus seems probable that the ceramic tradition of post-Assyrian and Achaemenid Mesopotamia represented a gradual development from the early Iron Age - which was only to change drastically in terms of ceramic fabric, form and surface treatment during the Hellenistic/Seleucid period. The closer dating of the possible mechanisms of this transformation, and the relationship to changes in Iron III - IV ceramics in

Iran (Levine, 1987) are worth closer scrutiny in the future, particularly given Gibson's (1974) suggested technological distinction between certain types of stamped vessels, and the dating potential allowed by the matching of identical die-stamps on ceramics from different sites (Simpson, 1988). In the meantime the Khirbet Qasrij corpus provides invaluable evidence of the earlier local tradition.

The artifactual evidence: other finds. The modest assemblage of "small finds" from Khirbet Qasrij nevertheless provides a glimpse of the types of artifact used on rural Iron Age sites in this region, about which almost nothing is known archaeologically. They include fragments of iron tools and a probable weight (no copper or bronze was found), glass beads and a vessel fragment, plain uninscribed ceramic wall-nails, an animal figurine, perforated stone loom-weights, and a fine decorated stone duck-shaped weight with Babylonian parallels but belonging to a previously unrecorded metrological standard. A hollow unbaked clay object was tentatively suggested to be associated with bee-keeping: if so, it would provide rare archaeological evidence for an aspect of rural economy that is textually attested from this period (Dalley, 1984: 203; Ghirshman, 1954: 184) and was important recently in the Near East as a relatively labour-free but profitable means of obtaining a sweetener (Kramer, 1982: 49, 89, Fig. 4.3).

The discovery in the eastern half of the excavated potters' compound of four fragments of tripod-footed basalt bowls, that were perhaps used to roll out balls of dough prior to baking judging by ethnographic parallels from Iran (Wilkinson, 1944: 289, 291), strengthens the evidence for domestic activities in this area. They also suggest trade or exchange links with north Syria, whence comes the raw material if not the actual finished items (Buchholz, 1963). The lithics – a flint/chert bladelet core, similar to one found near Qasrij Cliff, and a plain sickle-blade element – hint at the continuing use (or re-use) of chipped stone tools that is generally under-estimated for the historic periods in the Near East (Miller, 1984). It is perhaps worth noting here that evidence for temporary flint industry workshops dating possibly as late as the Iron Age were noted on archaeological surface survey in a nearby portion of the Tigris valley (Mazurowski, 1987: 22). The presence of a cowrie shell (*Cypraea*) with ground-down dorsum and a dentalium shell bead, both from the Arabian Gulf, provide further possible evidence for contact with southern Babylonia and another rather neglected exploitation and trade activity, if that is they have not been re-used from an earlier period (Reese, 1989). Finally, it should be mentioned that brief notes on the field conservation of the "small finds" excavated at this site are included in this report (Uprichard, 1989).

Conclusion

The method of publication of the 'final reports' of excavations and surveys continues to be a controversial topic in Near Eastern as well as other fields of archaeology. Given the increasingly large financial investments involved in the recovery and processing of the material, the problems in access to archival reports, and the fact that excavations and surveys provide the basic archaeological data-base for reconstructing ancient societies, it seems logical that as much of this primary evidence as possible should be published in a user-friendly fashion that can be consulted by a wide range of potential readers. The prompt, attractively produced, and

reasonably priced publication of the excavations at Qasrij Cliff and Khirbet Qasrij, with deliberate emphasis being given to the presentation of as much of the ceramics as possible, not only enlightens our understanding of what David Oates once described as “one of the most serious gaps in our knowledge of the history of Northern Iraq”, but vindicates the participation in salvage projects where previously neglected categories of rural or industrial site have been deliberately investigated.

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WHEELER, Alwyne and JONES, A.K.G. *Fishes*. Cambridge: Cambridge University Press, 1989. xiv, 210p; illus. (Cambridge manuals in archaeology) ISBN 0-521-30407-5 £32.50

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WILMOT, Edward. *Canterbury Archaeological Society: the first 70 years: the story of those who dug, preserved and recorded, 1920-1990*; researched and written by Edward Wilmot. Canterbury: Edward Wilmot, 1989. [4], 116p; illus. ISBN 0-9513316-1-2 £6.95

WRIGHT, Edward. *The Ferriby boats: seacraft of the Bronze Age*. London: Routledge, 1990. xxi, 206p; illus. ISBN 0-415-02599-0 £75.00

PERIODICALS RECEIVED

ANCIENT Mesoamerica, Vol. 1, no. 1, Spring 1990. Cambridge, Cambridge University Press, 1990.

BULLETIN archéologique du Comité des Travaux Historiques et Scientifiques: Afrique du nord. Nouvelle série 20-21; année 1984-5. Paris, 1989.

BULLETIN of the Anglo-Israel Archaeological Society, Volume 8, 1988-9. London 1989.

JOURNAL of Roman pottery studies. Vol. 2. Oxford: Oxbow, 1989.

BOOK REVIEWS

AITKEN, M. J. *Science-based dating in archaeology.* London: Longman, 1990. xix, 274p; figs; tpls. (Longman archaeology series) ISBN 0-582-05498-2 (Hbk.) ISBN 0-582-49309-9 (pbk) Hbk: £22.00; pbk: £12.00

The name of Professor Martin Aitken, of the Research Laboratory for Archaeology and the History of Art at Oxford until he retired in 1989, is virtually synonymous with scientific dating methods, particularly in archaeology. This is a field in which developments are continually being made whether by the refinement of techniques or by the introduction of new ones; and this volume in the Longman Archaeology Series is a timely, comprehensive and up-to-date survey of the present position. The time-span goes back several million years to the development of hominids.

Aitken deals with his subject at two levels. The text is mainly written in plain language for non-scientists, with a minimum of equations and excursions into scientific techniques. But each chapter has end-notes which discuss various points in greater details, and will interest scientific practitioners. The purposes of the book, as well as giving a comprehensive survey of the field, are threefold: a) to guide archaeologists as to which technique is the best for given conditions at any site, b) to improve their knowledge of the various techniques so that they can better communicate with specialists operating the techniques, and c) to give an up-to-date picture to dating specialists themselves of the state of development of techniques other than their own. Inevitably, individual specialties have become associated with specific

laboratories, and the experts themselves need to know the latest situation of other dating techniques.

The whole field of scientific dating is covered, from radiometric to biological techniques. A general introductory chapter sets the background by discussing the climate-based frameworks of the geological Quaternary period, covering the Pleistocene (glacial) and the current Holocene (post-glacial) epochs. The time-scale is provided by oxygen-isotope fractionation at different depths in the ocean bed. A concise account of the Milankovitch Astronomical Theory of Climate is included. The discussion includes the pollen record, varve chronology and dendrochronology.

In the scientific techniques, pride of place is given to radiocarbon dating, which has wide applications; 'Libby' and 'revised' radiocarbon dates are discussed, as well as their conversion to absolute dating sequences by dendrochronology and other means. There is a brief description of other radio-isotopes, eg calcium-41, which may have application in archaeological dating. The description of radiocarbon dating includes the comparatively new AMS method, which has reduced sample sizes, allowed measurements to be made on different chemicals in a sample, and reduced measuring time.

Potassium-argon, uranium series and fission-track dating are geological techniques which are being increasingly used in archaeology, particularly for the Palaeolithic period and the early hominids. Advances in techniques with potassium-argon means that the latest age limit is being reduced, and hence archaeological applications are increasing.

Thermoluminescence (TL) dating is applicable to pottery and burnt flint and stones; optically stimulated luminescence (OSL or PSL) is being developed for dating sediments, while phototransferred thermoluminescence (PTTL) is a refinement of TL for use with pottery. Electron spin resonance (ESR) is an alternative technique for measuring radiation doses (the basis of TL) and is useful for dating tooth enamel, mollusc shells, coral, calcite and quartz.

Amino-acid racemisation can be used for dating bones, teeth and shells; hydration of obsidian (widely used for prehistoric tools) provides another dating method. Other chemical methods include glass-layer counting (for glasses), and measuring fluorine and other elements (for bone). Magnetic dating techniques are important for fired clay, eg furnaces and hearths, and may also be used with unburnt sediments.

References to other published material are plentiful, and Aitken is to be congratulated on gathering the information contained in many scattered sources into what is in effect a comprehensive textbook. It will remain in use for a long time, providing a dated record of the state of the art of dating, a state which will undoubtedly be refined and widened in the future.

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AL-KALIFA, Shaika Haya Ali and **RICE**, Michael (eds.) *Bahrain through the ages: the archaeology*. London: KPI (Routledge & K. Paul), 1986. 526p; illus. ISBN 0-7103-0112-x £25.00

Among Bahrain's most striking archaeological remains are its EBA burial mounds, at least 172,000 in lunar landscape gravefields. They are broadly contemporary with the late 3rd/early 2nd millennium BC flourishing of Bahrain as the centre of Dilmun, known from the Gilgamesh myth and Sumerian documents. Of the 48 contributions to this volume, which forms the archaeological part of the Conference on *Bahrain through the ages* in 1983, most deal with the Dilmun period. This, however, is but one of the major peaks in the incidence of settlement sites found by archaeological fieldwork. Larsen here relates these geographically to the distribution of artesian water, which particularly favoured settlement in the north of the island, as it still does. In the last three decades, oil, banking and insurance have brought extensive construction programmes, not to mention the Bahrain-Saudi Causeway, into the archaeologically most prolific areas.

Local lithic industries are no longer thought to be as early as Middle Palaeolithic (Tixier). The earliest main settlements are related to southern Mesopotamia, c. 4000 BC, with imported Ubaid pottery (Joan Oates) appearing on sites connected with fishing industries (de Cardi); as elsewhere in the Gulf, these can be seen as pioneering the maritime contacts between it and the Indian Ocean. On the burial mounds, there is the demographic issue of whether they include an immigrant element (Lamberg-Karlovsky) or could all be indigenous (Frohlich). Several papers on the important Barbar temple and the city at Qalat al-Bahrain, where the Danish excavations began in 1953, include reconsiderations of their chronology. Several other contributions deal with Dilmun's trading and other contacts overseas: Mesopotamia,

obviously; but also the Indus, a focus of active research (Kjaerum, Mitchell, Rao, Dani), for which finds from another Gulf island, Failaka, are also significant.

As with the Ubaid and Dilmun periods, Bahrain's main periods of prosperity have been connected with sea-trade in the Gulf and beyond (Bowersock, on Greco-Roman connections). Notable here are the Hellenistic fort at Qalat al-Bahrain (M. Kervran), which formed the nucleus of the impressive Portuguese fort of the Islamic period. Conference papers on Islamic Bahrain are mostly excluded from this volume, but archaeological fieldwork has been finding numerous sites of the period, indicating much potential for developing Bahrain's medieval archaeology. It is also good to see the conservation of its traditional architecture (Lewcock), notably the wind-tower of houses of earlier al-Khalifa emirs on Muharraq. In the bicentennial year of the dynasty, the conference demonstrated not only the wide international interest in Bahrain's archaeology and history, but also a very welcome commitment to preserving the island's heritage.

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ALARCÃO, Jorge de. *Roman Portugal*. Warminster: Aris & Phillips, 1988. 2 vols. in 4. (Archaeologists guides to the Roman World). ISBN 0-85668-393-0 (Complete work) Hbk: £120; pbk: £60.

The bulk of this publication (Volume II: three of the four volumes in paperback) comprises a gazetteer of Roman sites of modern Portugal (note that not all of Roman Lusitania, for example the capital at Merida, is included within Portugal). This work is complemented by Volume I which is offered as an introduction to

the archaeology of Roman Portugal, covering such themes as the historical background, administrative divisions, settlement, the economy, religion, art and architecture.

First, the gazetteer. For ease of reference, the gazetteer is divided into eight, roughly rectangular, geographical units. About 2,800 sites (from major towns to pot scatters, milestones, inscriptions and hoards are included) are plotted on maps at a scale of 1 : 250,000. These maps in turn, were constructed by plotting the sites on maps of 1 : 25,000, more appropriate to the task. In general, the name (or names) of each site is given together with a reference to the district and parish where it is located, a description (in Portuguese and English) and a brief bibliography.

As Alarcão states in the introduction to the Gazetteer (Vol. II, page V) "it would be most imprudent for anyone to set off in quest of Roman sites by simply scaling up our 1:250,000 maps by ten and plotting them on the 1:25,000". Instead, the reader is advised, or rather, has no alternative but to read up on each site and find its more exact location from the bibliography provided. In the absence of topographical detail on the maps provided, barring rivers and a very rough indication of the location of principal highlands, the absence of map references is quite surprising. Indeed, the lack of detail in its presentation leads us to consider the use for which the gazetteer was intended. The various sections are not presented as regional studies. Anyone wishing to tackle a regional archaeological reconstruction would need to investigate in the field or to examine local museum collections, armed with the basic list of sites and comments provided in the Gazetteer. As we would expect, information on sites in the Gazetteer varies considerably, depending on the degree of excavation and quality of published works. A great majority of settlement sites are still undated.

The limitations of this work can clearly be seen from Alarcão's assessment of the evidence in Volume I. As one who has encountered similar archaeological voids while studying the Roman archaeology of SE Spain, I appreciate the difficulties Alarcão must have faced in writing an account of Roman Portugal on the evidence available to him.

Many towns, including *civitas* capitals, noted in epigraphic or literary sources still remains to be identified with certainty. For this reason, Alarcão, in Chapter 2, rightly discusses their location at length. The definition of *civitas territoria*, however, seems quite premature and arbitrary on the evidence available. Alarcão's fairly detailed study of the road system (Chapter 4) is valuable as it is in part based on the analysis of extant road works and the numerous milestones and smaller settlements/road stations or *vici* listed in the Gazetteer. However, the absence of reference to Roman road itineraries other than the Antonine Itinerary (ie the Guido Geographica and the Ravenna Cosmography) is surprising as they contain a wealth of additional data, particularly on secondary routes. Though fairly good maps of the road system are presented (p. 52-53) routes on these maps are drawn without reference to geographical features (with the exception of rivers) or the distribution of settlement. Though we may look up each site or milestone, as he cites them in Chapter 4, on the maps provided in the Gazetteer, I feel Alarcão has lost a good opportunity to use the road system as a means to illustrate the underlying "structure" of Roman settlement in the region.

Whereas the chapters on religion and economic life (Chapter 6 and 7) are fairly informative, the chapters on settlement (Chapter 3 on towns, *vici* and *castella*, Chapter 5 on villas) are disappointing. Undoubtedly, this is a reflection of the lack and unevenness of the archaeological evidence all round (no systematic surveys and few excavations). Indeed, the archaeological documentation at Conimbriga is exceptional. Alarcão, nevertheless, attempts to describe the archaeological evidence for building

activity and occupation within towns through time (Augustan, Flavian, post-Flavian), though quite clearly, in some cases (eg. all the towns included under the heading "other Augustan towns in Central Portugal", page 39) even he admits he has no dating evidence whatsoever. There are some glaring contradictions. For example, having stated that the Flavian rebuilding of the forum at Conimbriga does not imply that there was similar contemporary building activity elsewhere, four other towns are mentioned under the section on Flavian towns but he gives no evidence of dated Flavian structures. Alarcão then begins the following section with a reference to the "many improvements to urban life" brought about under the Flavians he has supposedly discussed. A short section on the "social composition of the towns" (p. 39-40) is quite simplistic in both aims and views and does not discuss even basic evidence (eg inscriptions). Compare this section with S. Keay's treatment of the subject (see review below, p. ***).

In Chapter 5, the classic villa economy of Portugal is described as that based on *latifundia* (p. 62), though there is no evidence, distribution maps of villa sites, for example, to support this. Though Alarcão here refers to a few large-scale villa sites, some are clearly typical late Roman villas as those encountered in Roman Spain. Alarcão's interpretation of the economy of villa sites seems equally arbitrary (p. 62-63).

A serious flaw is the lack of understanding of, or perhaps interest in, tracing the development and inter-relationship of town and country sites through time. Indeed, the mid and late Roman periods are scarcely perceptible in this work.

An overall criticism is the lack of synthesis offered despite the pretensions of the chapter headings. Subjects appear disjointed and without chronological continuity. We do not finish the book with a concept of how the region functioned as a province. We are left to work this out for ourselves. This is in part a reflection of the lack of detailed regional surveys of settlement and of dated sites in general.

In addition to some, perhaps, insurmountable problems the text would have benefitted from a far stronger editor's hand throughout than has been given. The historical introduction, for example, contains some quite excruciating, detailed descriptions, and irrelevant asides. We may note that, in my edition at least, part of the text of pages 89-90, on African Red Slip Ware, has been scrambled. I noticed very few spelling mistakes. Figure 161 and the caption of Figure 51 are missing from the Gazetteer.

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ALLASON-JONES, Lindsay. *Women in Roman Britain*. London: British Museum Publications, 1989. 208p; illus. ISBN 0-7141-1392-1 £9.95

EHRENBERG, Margaret. *Women in Prehistory*. London: British Museum Publications, 1989. 192p; illus. ISBN 0-7141-1388-3 £9.95

The issue of feminism and the increasing emphasis on the feminine gender has now been highlighted in the new series published by British Museum publications. Ehrenberg has perhaps a more difficult task in that she covers a wide span from the earliest communities to the Celtic era. In her claim that the role of women in Prehistoric times has been largely overlooked, she examines evidence from archaeology, anthropology and classical documentary sources. Allason-Jones, on the other hand, in concentrating on one period covers well-worn ground from a different perspective. Parallel studies on a similar theme would include J.P.V.D. Balston, *Roman Women* (1968) and André Pelletier, *La Femme dans la Société Gallo-Romaine* (1984). The former used examples mainly from the upper classes while

the latter looked at women in a variety of categories as wives of officials, traders, army men and as citizens in their own right.

Because the evidence available to Ehrenberg is fragmentary, the book is more a collection of essays than a related text. The chapter on the earliest communities draws on anthropological evidence relating to the role of women in modern societies from the !Kung of the Kalahari desert to the Inuit of northern Canada. A chapter on the Bronze Age has a short section on the possibility of Minoan Crete being a matriarchal society, and others are on the role of women in North West Europe, Southern Britain, Southern Scandinavia and South West Slovakia, where the evidence is drawn mainly from the Branč cemetery. The Iron Age concentrates on the mainly familiar topic of women as priestesses and leaders.

Allason-Jones has the advantage of having far more archaeological evidence available to her, so much so that the book takes on the form of a history of Roman Britain. At times women appear to be brought into the discussion for the sake of being women, as when dealing with the villas and the army. Elsewhere the evidence relies upon classical writers, as for example, Soranus in the chapter relating to birth, marriage and death, but his advice may not have been specifically followed in Britain. Nevertheless there is a great deal of interesting material here which helps to illuminate life-styles in Roman Britain.

In both of these books the emphasis is on women in the upper strata of society. This is perhaps inevitable especially in Ehrenberg's book where the bulk of the evidence is from grave goods. We know very little about women who had more lowly status and whose lives therefore might be a daily round of unrelenting toil.

The production of both these books, as in the case of all British Museum publications, is of a very high standard. A decision has been taken to keep footnotes to a minimum; in this

case it would have been useful to have had more detailed bibliographies for each chapter in order to read further into the available evidence.

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ANDERSON, Atholl. *Prodigious birds: moas and moa-hunting in prehistoric New Zealand*. Cambridge: Cambridge University Press, 1989 ISBN 0-521-35209-6 £45.00

New Zealand provides one of the most fascinating case studies of the impact of man on island faunas, and the hunting and extinction of the moa is central to what happened in New Zealand. Anderson's survey of the remarkable biology and history of these flightless birds cuts a vigorous swathe through the controversial history of the subject. According to current classification, there were thirteen species, though as many as 30 were claimed in the nineteenth century. The largest stood over 3.5m tall and weighed 230kg, more than twice the weight of an ostrich. The comment (admittedly wrenched from its context) that "moas were unremarkable in their morphology" is surely unduly modest.

The question of when the moas became extinct is complicated by the fact that the Maori made tools from ancient bone found on former hunting sites, but rigorous analysis of the radiocarbon dates now shows that this occurred some time between or shortly after 400-500bp, some 700 years after New Zealand was colonised from east Polynesia by the ancestors of the Maoris, and two hundred years before the first Europeans came. On North Island the colonisers were able to continue the agriculture with which they were familiar, but on South Island they had to take up hunting, and this is where moas were most important. The different hunting strategies,

and methods of butchery and processing which are described are all novel to archaeologists familiar with other parts of the world.

The illustrations are clear and well chosen, though I would like to have seen more examples of the butchery of bones with the morphology of bird bones but the robusticity of those of cattle. It is a pity too that Cambridge University Press has been parsimonious with the weight of the paper.

When the Maori had killed off the goose which layed the golden eggs, they instead were obliged to spend more time fishing, sealing and capturing sea birds. If only for practical reasons, they must have regretted the loss of these large birds, just as we do.

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ARCHAEOLOGICAL method and theory, vol. 1; edited by Michael B. Schiffer. Tuscon : University of Arizona Press, 1989. xii, 273p; figs, ISSN 1043-1691. \$35.00

This is the first issue of a new series which effectively replaces the recently defunct *Advances in archaeological method and theory*. The same editor (the magisterial Michael B. Schiffer), who writes the Preface, announces that it will carry on the same function: the provision of outstanding topical syntheses on specific methodological or theoretical subjects. Contributors can include archaeological case studies only if needed to illustrate points, and some 'topical updates' of previous syntheses will be accepted in future volumes; otherwise contributions must concentrate on ideas and principles which affect the explanation of material remains. Each MS will be vetted by an Advisory Board of senior experts (listed on p.ix)

who might recommend extensive revisions. (Does this render further reviewing superfluous?).

There are five essays in volume 1. In the first, David Rindos (University of Western Australia, Perth), discusses in 46 densely written pages the Darwinian proposal that natural selection of undirected variation (in the context of environmental fluctuations) is the 'machine which drives evolutionary change' and the consequent changes over time in human cultural patterns. A huge and complex subject in which the author attempts to bring together Nature and Nurture.

Elliot M. Abrams addresses the anthropological implications in the amounts of physical energy used to construct architectural features and the relationships between them and sociocultural complexes. He proposes a method of estimating the energy units needed for their construction, and cites its application to the Classic Maya centre of Copan in Honduras.

The third paper is by Michael Smyth on *Domestic storage behaviour in Mesoamerica: an ethnoarchaeological approach*. This deals with 'theoretical issues concerning the role of storage and surplus in the functioning of complex societies'. A study of the modern Yacatee Maya storage methods aids interpretation of the archaeological record.

The fourth paper is for those who love and understand computers. K. L. Kvamme describes a geographic information system (GIS) designed to deal with quantities of locational data. It is a database management system which copes with the spatial aspect of information. The GIS can produce maps for various data themes; those illustrated show the landform associations of a locus (contours, slope, data, local relief, nearest water, drainage etc.) He describes how the data system can be set up, learned, and used to simulate situations, test hypotheses, or discover patterns.

In Chapter 5, A. Whitmer and five other authors from Louisiana University discuss trace elements in burial or fossil bone, and the role the

study of these can play in reconstructing the past diet and health, taking into account the chemical and physical post-mortem alteration of bone (a form of diagenesis). They propose a simple diffusion transport model to explain the stability or instability of certain trace elements.

Each contribution is copiously referenced, though less generously illustrated, and is relatively free of sociology-speak. One may question the value of combining such diverse subject matters in one volume, but the high standard of the research bases should make it required reading for those aspiring to join Departments of Anthropology, particularly those in America.

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BARBET, Alix (ed.) *La Peinture murale romaine dans les provinces de l'Empire: journées d'étude de Paris, 23-25 septembre 1982*. Oxford: British Archaeological Reports, 1983. 339p; illus. (BAR International series, 165) ISBN 0-86054-211-4 £20.00

The papers in this volume were given at a conference in Paris in 1982. Only Barbet's gives an overview of provincial wall-painting, and that is as an introduction to the conference itself, rather than to the contents of the volume. She defines two general problems as in need of attention: how to present wall-painting in publication; and the relationship of provincial wall-painting to Italian styles. It does seem worth reviewing what she called 'l'état de la question' further, in terms of what these papers amount to over all. Two additional problems come to mind initially: one, the relationship between, or the individual diversity of, the provinces; the other, and more complex, what methods and questions are involved in analysing

the materials. For instance, are we looking for stylistic traits, technical processes, thematic links or iconographic parallels? More generally, are we concerned with artistic schools, social levels of patronage, or provincial deconstruction of metropolitan Roman images? And there are the problems which Ling discusses in his paper on Britain (which lacks resources comparable with Mme. Barbet's Centre d'Étude in Paris), both in excavation and in the post-excavation treatment, and in the quality and accuracy of restorations.

Of the other papers, Blanc's on the comparable subject of stucco-workers is of particular interest for the epigraphic material. Two are short notices of then current exhibitions. Of the other thirteen, ten simply follow the territorial imperative, and in subject matter are either regional (on paintings in Switzerland, Belgium, the Netherlands, Britain, Lorraine, Normandy) or site-specific (Avenches, Cologne, Narbonne, Paris). Three, however, present studies of a theme: Dumasy on amphitheatre and circus scenes from La Croisille, Schleiermacher on hunting scenes from Cologne, and Moorman and Swinkels on perspective lozenges on mosaics and some paintings. Two contributions are in English, two in German with French summaries, and the rest in French. Most of the illustrations are of good quality; though in Fuchs' paper on Avenches it is baffling to find Figs. 2, 11, 12, 15, 22, 23, 13, 14, 16 in that consecutive order.

Some of the Avenches paintings are of particular interest for the technical details of their setting-out. One looks forward to further such studies, though they are usually practicable only where relatively large areas of plaster are preserved. Some of the Avenches plaster was from a ceiling, and other ceiling plaster is identifiable from its painted design, especially patterns of circles or polygons and stylised flowers (Cf. Delplace, on Belgian villas). Useful comparisons could be made between provinces based on the incidence of other motifs or subjects which recur in many of the papers, e.g. the umbelliferous candelabrum, clumps of foliage,

projecting architectural features, marble panelling, hunting and circus scenes. In discussion of these, citation of parallels can seem rather eclectic, but such papers as Heckenbenner's (on Lorraine) and Moorman and Swinkels' show that more fully systematic studies are now possible.

The study of Roman provincial wall-painting is still quite a recent development. The overall effect of this volume, compared with the publication of the 1980 Cambridge conference papers (BAR Int. ser. 140, 1982, ed. J. Liversidge), is that more discoveries had been made, but much was still at the stage of being worked through. With the further work of the years which have followed the volume reviewed here, it should be now be possible to produce the more analytic work of synthesis on Roman provincial wall-painting for which conferences such as this have been assembling the data.

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BARNES, Gina L. *Protohistoric Yamato: archaeology of the first Japanese State*. Ann Arbor: University of Michigan Center for Japanese Studies; The Museum of Anthropology, University of Michigan, 1988. xx, 473p; 94 figs. (Michigan papers in Japanese studies, no. 17; Anthropological papers, Museum of Anthropology, University of Michigan, no. 78) ISBN 0-915703-11-4 \$15.00

The setting for this study is the Nara basin, close to the modern cities of Osaka and Kyoto, located in the western central section of Honshu, the main island of Japan. Defined by literary sources, the period lasted from 57 to 712 AD. This was from the emergence of Japan in Chinese historical sources (an emissary to the Chinese court from a Kingdom in Kyushu) to the

completion of Japan's first native chronicle, the *Kojiki*. Yamato was *not* the only emerging state in Japan at this time, but it is the one associated with the *Kojiki*, listing the emperors and prominent families, hence its importance to the Japanese.

Gina Barnes approaches the subject as an anthropologist, concentrating on the settlement data of the late third to the early sixth centuries AD. 'It is in the settlement realm ... that we find the demographic and socio-economic data that are anthropologically necessary for investigating state formation' (p. xiii). This is in direct contrast to the work of most Japanese historians and archaeologists, who have been looking through early texts and excavating monumental tomb remains supposedly relating to them.

Protohistoric Yamato includes comprehensive information about Nara Basin archaeology, its history, organization and practice, which is relevant to broader considerations of the way archaeology is conducted in Japan. The nature of the available data is discussed in great detail, focussing on problems of definition, identification, classification and distribution of sites (and concomitant data). Settlement patterns are examined for evidence of developing social stratification and the emerging state system.

Appendices occupy 150-odd pages or about one third of the book. These include a glossary of Japanese terms, a general bibliography, a summary of tomb data, a list of 1348 fully referenced sites (by number, by alphabetical order, and by grid coordinates) of which the main 40 or so, have explanatory site descriptions. A list of 1538 (Japanese-language) site reports are given. However there is no index and the back cover, which might have been used to explain the scope of the book, is left blank.

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BEAVIS, Ian C. *Insects and other invertebrates in classical antiquity*. Exeter: Exeter University Publications, 1988. 269p. ISBN 0-85989-284-0 £40.00

This revised edition of a PhD thesis might be described as a combination of etymology and entomology and is a most unusual work. In fact the only other book of this type is *Greek Insects* by Davies and Kathirithamby and this covers only the Hexapods.

A wide range of creatures is dealt with, one group per chapter, though the groupings are not always those accepted by taxonomists. For example, worms and leeches are with centipedes and woodlice; grasshoppers with mayflies, and flies with fleas. But this is not a taxonomic work. It deals with insects and other invertebrates as they were regarded in ancient times and traces the origins of their names, as well as providing fascinating accounts of their life-histories, habits, importance as pests, the medicinal uses for, and popular beliefs about, many of the more common and lowly creatures which attracted the attention of thinkers and writers, such as Aristotle, in the ancient world.

There are some interesting examples of the problems caused by insect pests and some of the remedies prescribed. The misguided belief that insects were spontaneously generated within food or decaying objects was universal and in very few cases were the developing caterpillars or larval stages ever linked to the adults of the species. The clearest example of this spontaneous generation was believed to be the discovery of *kis* or *curculio* [grain beetles] in grain. In contrast to this, the advice to store grain in a cool dry conditions with stores raised off the ground and with open east and north facing sides is still sound practice today.

There is confusion caused by some of the names which were used for insects. The term *thrips* was used in antiquity for woodborers like deathwatch beetle. The Latin name *Thrips* is now only used for the group of tiny insects which include the well known "Thunderbug".

Similarly, the word *ses* or *tinea* is used not only for clothes moths [some of which are still called *Tinea*] but also for booklice [*Psocoptera*]. Aristotle observed that the damage by *Tinea* was greater when spiders' webs were present. With the benefit of hindsight we can conclude that he may have mistaken the silk webbing and cocoons produced by the damaging *Tinea* larvae with that made by spiders. It was widely believed by the Greeks that clothes moth larvae would not attack fabrics used at funerals, and maybe the use of perfume and oils on cadavers did indeed have some repellent effect and prevent infestation. Treatment of vines against pests by burning sulphur makes some sense today, but cockroaches boiled in oil are no longer considered useful as a cure for ear-ache nor glow-worms of any value in preventing conception.

A book for entomologists primarily, and although at first sight it appears daunting and dull, its unique mix of intriguing facts, fiction and folklore should give it a wider appeal. A knowledge of Greek would enhance the reader's enjoyment of this very remarkable volume.

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BENKO, Stephen. *Pagan Rome and the Early Christians*. London : Batsford, 1985. ix, 180p. ISBN 0-7134-4800-8 £14.95

In this book Benko discusses the conflict between the pagans and early Christians. He looks at the charges levied against the Christians and why the pagans felt the way they did.

In the preface Benko says that he is looking at Christianity from a second century pagan point-of-view, giving them "the benefit of the doubt" (p. ix) but it is obvious from the wording

and tone, even at this early stage of the book, that he is in fact looking at it with a modern Christian attitude.

Chapter one considers the name 'Christian' and what it may have meant in terms of the early persecution. The Christians claimed to have been victimized simply because of their name but Benko points out that the Christians were seen as upsetting the social order and leading people away from the pagan gods, and, therefore, from the Roman way of life. They were a threat to society. Benko shows that the Christians could have been easily misunderstood by outsiders because they were seen to meet at night (a time for conspirators and plots), they chanted/sang hymns (easily mistaken for incantations) and they ate meals together (possibly consisting of unordinary food), all of which had magical and potentially evil properties to the pagan mind. The reason that Benko gives for the pagans thinking this is that many Eastern cults also met at night, chanted and ate meals together and were up to no good. The Christians being an Eastern cult, were judged on the basis of what others did, and were, of course, innocent of the charges.

Benko continues this line in chapter three when he looks at the charges of immorality and cannibalism levelled against the Christians. The main problem that Benko sees is that the Christians did practice their religion under a cloak of secrecy, so, to the outsider, they could have been up to anything. The Christians believed they had exclusive possession of divine knowledge, while the Romans wanted these ideas left open for debate amongst the various religions. In this way all pagan religions would be equal, with none claiming a moral superiority. The charge of cannibalism against the Christians is believed by Benko to be a possible misunderstanding of the Christian liturgy. Again the reason for this misunderstanding is made from Roman comparisons of other Eastern cults involved in cannibalism and immorality, and the Christians taking the blame along with the others. Benko does point out, though, that some

of the more radical and fringe sections of the Christians were in fact doing these things, and it was also because of them that all Christians were branded as evil.

Chapter five examines magic with respect to early Christianity. Magicians and pagan religious practices were, of course, tricks to fool the people. Christians were barred from these rites by the magicians and charlatans because the Christians would see through the ploys and bring the fraud out into the open. Benko states that the Christians had superior powers and because they could perform miracles they were also branded magicians. The Christians practiced exorcism, raised the dead, and did other types of miracles but it was not magic like the pagans were doing. The Christians were making "a legitimate exercise of a privilege granted to them by God." (p. 131).

The intellectual attacks made on the Christians by educated and unbiased pagans are studied in Chapter six. Celsius, in particular, is given a long section in which his arguments are stated, but no refutation is given. Benko includes this to show how the Christian intellectuals used the arguments to pull themselves up and sort themselves out. They began to "radiate a new light" (p. 158) as the Christians took positive, corrective measures, after which they went on to show the world the true path.

Chapters two and four appear to have little purpose in the book. Chapter two looks at the Cynics, who were seen as very similar to, though not as good or worthy as, the Christians. Chapter four discussed the holy kiss and seems to have no connection with the rest of the discussion.

Everything in this book is stated in a simplistic manner. Benko appears to be very much a product of a Christian upbringing and life which does not allow him to look fairly and evenly at the pagan point-of-view. He appears to believe the rumours and heresay of other religions just as he accuses the pagans of doing to the Christians. He gives examples which show that the early Christians did the same things as all the other cults of the day, but when

the Christians did it, it was right and for a good reason, while when the pagans did it, it was superstitious and wrong. The Christians were misunderstood and persecuted because they were the subject of bad comparisons made with other Eastern religions or were given a bad light when different Christian sects did wrong. They also suffered because the pagans did not like the Jews, so the Christian sect, coming from Judaism, was even more disliked.

This book has a biased view of the early Christians and pagans and any students who wish to read up on this subject are advised to look at *The Christians as the Romans saw them* by Robert Wilken, published in the same year.

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BOGUCKI, Peter. *Forest farmers and stockherders : early agriculture and its consequences in North-Central Europe.* Cambridge : Cambridge University Press, 1988. xiv, 247p; 60 figs; 3 tpls. (New studies in archaeology). ISBN0-521-32959-0 £27.50.

This often impressive review covers the area of North-Central Europe (largely the loess belt and the North European Plain) in the period 4500-2500 B.C. It usefully digests an enormous mass of data, much of it unfamiliar to the British reader, and the descriptions of the settlement and economic evidence from the sites covered are extremely valuable. Bogucki divides the material on chronological lines into a 'Primary Neolithic' from 4500-3500 B.C. and a later 'Consequent Neolithic'. This also entails a geographical division in that the 'Primary Neolithic' is essentially based on the loess belt. Some terminological confusion creeps in here, as the Lengyel farmers of Eastern Europe were not primary agriculturalists.

The stated aim of the author is to place these early farming communities within their environmental context and in this he undoubtedly succeeds. However, he also wishes to broaden his ecologically based systems analysis to cover social and political organisation. While his desire is laudable, and marks an advance in approach on earlier studies which sometimes seemed to want to place humans in a subordinate relationship to their natural environment, it is ultimately unsuccessful.

On the transition to agriculture of peripheral areas such as Denmark and Holland Bogucki accepts that existing gatherer-hunter populations were the primary agents in the process and rejects the 'Wave of Advance' model on sound empirical grounds. Unfortunately, his analysis of the gatherer-hunters' motivation is far too brief and confined solely to the question of subsistence. He provides no real discussion of gatherer-hunter society and no examination of the significance of locally adopted versus introduced agriculture for later developments.

More worrying than this (for reducing gatherer-hunter society to its subsistence base is regrettably still common among writers on the Neolithic) are his general conclusions on social change through the 2000 year span of his investigation. Bogucki argues that in the Primary Neolithic, society was egalitarian and that not even the existence of 'Big Men' of the kind familiar from New Guinea can be envisaged. His reasoning is that there would have been insufficient surplus available for them to develop. In the richer ecological zones this is highly unlikely.

Furthermore, Bogucki ignores one of the major pieces of evidence for social divisions by arguing that enclosures at this time were merely to confine stock or deter wild animals. While ethnographic examples of thesis practice do exist, no real justification is given for applying this argument to the small number of early enclosures - why should these particular locations have required such elaborate arrangements? His objection to other views - that a single function

of fortified settlement or ritual arena can not be assigned to the class as a whole - appears to betray the failings of a rigid systems analysis approach.

For the Consequent Neolithic, ranking on the basis of age sex and influence is allowed, but not the existence of lineage-based societies and politics. Again this appears to underestimate the complexity of social organisation which a truly integrated society of subsistence, settlement, burial and ritual would produce. The evidence is certainly there but not addressed by Bogucki, who makes no attempt, for example, to link the use of cattle in ritual with their economic significance. Nevertheless, his work is a step in the right direction and in itself represents a considerable achievement of synthesis and description.

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BONSALL, Clive. (ed.) *The Mesolithic in Europe: papers presented at the Third International Symposium, Edinburgh 1985.* Edinburgh: John Donald, 1989. xii, 645p; illus. At head of title: U.I.S.P.P. Mesolithic Commission. ISBN 0-85976-205x £35.00

In recent years the Mesolithic has been receiving more serious attention than it used to. Formerly, interest leapt from the Palaeolithic to the Neolithic with scant attention paid to the cultures in between. The Mesolithic is now regarded as a crucial phase in the development of European society and research into it has provided evidence for population growth and increasing sedentism, complex social organization, exploitation of new habitats, and technological innovations.

This volume contains 62 papers which deal with various aspects of the Mesolithic and provides an update on current research and ideas that will be invaluable to students and

investigators in archaeology and anthropology and, also, to those involved in biological and earth sciences.

Of special interest to workers in the British Isles will be Van Wijngaarden-Bakker's *Faunal remains in the Irish Mesolithic*; Morrison and Bonsall's *The Early Post-Glacial settlement of Scotland: a review*; Bonsall, Sutherland, Tipping and Cherry's *The Eskmeals project - Late Mesolithic settlement and environment in North-West England*; Schadla-Hall's *The Vale of Pickering in the Early Mesolithic context*; Legge and Rowley-Conwy's *Some preliminary results of a re-examination of the Starr Carr fauna*; Dumont's *Starr Carr: The results of a micro-wear study*; David's *Some aspects of the human presence in west Wales during the Mesolithic*; and Barton's *Long blade technology in southern Britain*.

Having worked at Seamer Carr, this reviewer found the conclusions of R.T. Schadla-Hall of particular interest. The sites of Seamer are interpreted as representing occasional activity areas and Schadla-Hall demonstrates the value of developing sampling strategies for examining large areas of buried land surfaces and the need to expose large areas of palaeosurfaces "if a coherent pattern of activity is to be established." The continuing investigation of both Seamer Carr and Starr Carr is likely to change existing views on the nature of early Mesolithic exploitation of the Vale of Pickering and of inland sites in England generally. It is essential to our understanding of the British Mesolithic that the excavation and investigation of these premier sites be allowed to continue.

The preliminary results of the re-examination of the fauna at Starr Carr suggests the re-identification of bones. Elk increase considerably in numbers of fragments. Seasonal evidence discussed suggests summer occupation. The model for seasonal migration to the uplands by red deer is criticized. Thirty years after the publication of the site monograph, Starr Carr continues to yield new information.

The micro-wear study from Starr Carr makes it evident that particular tool types cannot be correlated with any confidence to any single type of worked material or with a particular manner of use. A wide range of activities were performed on or near the site.

Outside the papers above mentioned, this reviewer also found Rozoy's *The revolution of the bowmen in Europe* fascinating reading. The Mesolithic evidence for the presence of the bow and arrow is discussed. The point is made that "from an economic viewpoint the Epipalaeolithic was definitely not evolving towards food production."

The Mesolithic in Europe is a mine of information and a volume that will be welcomed by many researchers in the field of Epipalaeolithic studies. It will also continue to fuel debate and controversy.

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BRAWER, Mose (ed.) *Atlas of the Middle East*; prepared by Carta, Jerusalem. New York: Macmillan; London: Collier Macmillan, 1989. 140p; illus. ISBN 0-02-905271-8 £54.00

In broad terms there are two types of atlas: those which are essentially books of maps with all, or most of, the information presented in cartographic form; and those which are largely facts and figures, however presented, grouped by region or country and illustrated by maps. Both types have their value, and while the first stands or falls by the quality of the maps, the second must be judged by the reliability, accessibility, and appositeness of the statistics.

The *Atlas of the Middle East* is very much of the second type: four- or five-page articles on all the countries of the region with graphically presented statistics [pie diagrams and the like] on such things as population, land-use and climate. There are also passages on the geology, climate, fauna and flora, population, oil resources and political history of the Middle East as whole. It is a present-day economic and political atlas rather than a historical one - and certainly not an archaeological one [for that the new *Times Atlas* is far better]. Unfortunately also, the general articles are so condensed as to be of limited value [one and a bit columns on the whole of the region's geology, for example] and even some of the country-by-country figures are unhelpfully presented. For instance, student populations are given both as absolute numbers, which do not mean very much by themselves, and as percentages of the total populations of the different countries, which are not of much value without giving their relationships with the national age-structures.

But there is little point in criticizing a book for not being some larger and more complex work, and as a quick introductory reference for those countries of the region, and as a source of comparative figures, it serves its purpose.

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BREWER, Douglas J. and FRIEDMAN, René F. *Fish and fishing in ancient Egypt*. Warminster: Aris & Phillips, 1989. [8], 109p; illus: 14 col pls. (The natural history of Egypt, vol. 2) ISBN 0-85668-485-6 (Hbk.); ISBN 0-85668-485-6 (pbk.) Hbk: £32.00; pbk: £19.95

Since prehistoric times, fish have played an important role in the economic and religious life of ancient Egypt. This study describes ancient

Egyptian fishing tackle, artistic representations of fish and examines the role of fish in ancient Egyptian society. As fish remains from archaeological sites present particular difficulties in identification the appendix on osteology is a valuable inclusion. This concise reference work provides a useful introduction to the study of fish and fishing in ancient Egypt and is a welcome addition to the Aris and Phillips series on *The natural history of Egypt*.

The authors have thoroughly examined a variety of sources to produce three highly informative sections. The ancient Egyptians are renowned for their curiosity about the natural world and for their artistic skill in depicting their observations. Thus the main section of this study (Section III) provides an excellent catalogue of a variety of fish which the Egyptians depicted through hieroglyphs, reliefs and paintings. Strangely, the fish depicted on the important Punt reliefs of Hat-Shepsut's Temple at Deir el-Bahri are not included, but the interested reader is referred elsewhere. Whilst the main zoological criteria for identifying the fish are given, the authors remind us that some features which identify living fish (i.e. colour, scale count etc.) may not be accessible from the ancient Egyptian record. Each variety of fish, identified to the genus level, is fully described together with its habitat. Although the section is well illustrated from ancient sources, some illustrations of living fish would have aided our assessment of the ancient Egyptian's ability to depict fish artistically.

Our evidence for the fishing tackle utilised by the ancient Egyptians is obtained from artistic representations and from objects recovered from archaeological excavations. This evidence is summarised in Section II. The range of implements described include spear types, hooks and rods and various fishing traps and nets. Some information about the role differing types of fishing boats and their construction would have added to this well-written summary of ancient Egyptian fishing equipment.

The introduction and a general section (Section I) on fish in ancient Egypt give an informative examination on the role of fish in ancient Egyptian society from Prehistoric Times through to the later periods. Particular attention is paid to early subsistence strategies, to the economic role of fish and to the importance of fish in the diet. The often contradictory religious concepts concerning fish are stressed.

The book is lavishly illustrated with black and white illustrations and line drawings together with fourteen colour plates. An index of scientific names is included but a subject index would have been a welcome inclusion.

Overall, this is an excellent reference book and must surely encourage further study of the natural history of ancient Egypt.

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BROWN, R. Allen. *Castles from the air*; with photographs from the University of Cambridge Collection. Cambridge: Cambridge University Press, 1989. [8], 246p; illus. (Cambridge Air Surveys) ISBN 0-521-32932-9 £17.50

The author of this fine volume, R. Allen Brown, is synonymous with the study of castles, and it is therefore entirely appropriate that he should have undertaken the task of producing this volume. Sadly he died shortly after its completion in early 1989.

The scope of the volume is the Castles of England and Wales; other areas are mentioned only as isolated references. The basis of the work is essentially an extensive corpus of photographs held by the Cambridge Committee for Aerial Photography. Working within this collection he "tries not only to illustrate the most famous and 'important' castles ... but also to provide examples of all aspects of the siting,

type, design and development of castles in England and Wales during the period of their ascendancy and viability, which here extends from c 1066 to the sixteenth or seventeenth century." The entries are arranged in alphabetical order and this makes it easier to use, although a regional approach may well have been more useful in some circumstances, and it does have the disadvantage of not showing a chronological development.

There is a very full and interesting introduction which provides a justification of this approach and a general discussion of the genre. It provides an outline of the development of forms of castle, beginning with the Motte and Bailey type. Several beautiful line illustrations are incorporated into this section, especially on page 16 a drawing of the Wakefield Tower at the Tower of London. He points out that air photographs are of little use in studying architectural detail. However, the obvious advantages for studying development and plan are shown by the photographs supplied, and the specific locations more readily appreciated.

The full introduction is followed by 117 individual entries for castles in England and Wales, comprising superb black and white illustrations, historical outline and in some cases further references. This is a superb work of reference for all, from scholars to interested individuals. It is a handsome volume for anyone's bookshelf.

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BURGOYNE, Michael Hamilton. *Mamluk Jerusalem : an architectural study*; with additional historical research by D. S. Richards. [London; Jerusalem]: Published on behalf of the British School of Archaeology in Jerusalem by the World of Islam Festival Trust, 1987. xii, 623p; 64 figs; 64 pls (b & w); 32 pls (col); 2 plans in slip case. ISBN 0-905035-33-x Price not stated

With this work we are provided with a definitive account of Islam's third holiest city at the high point of its development. *Mamluk Jerusalem* is the culmination of fifteen years of research and fieldwork carried out by the British School of Archaeology in Jerusalem. Financial considerations have made such monumental publications rare in recent times and it is only through the generosity of several Arab monarchs and institutions that this work has been produced in a manner fitting to the grandeur of the buildings themselves. Not least among the sponsors of this project is His Highness Shaikh Zayed Bin Sultan al-Nahayyan, President of the United Arab Emirates who has presented this copy to the Institute of Archaeology.

Physically this book is quite large and compares favourably with other monumental works on Islamic architecture such as Creswell's *The Muslim architecture of Egypt* (Oxford 1952). In some ways Mamluk Jerusalem has the advantage over earlier works because it was possible to have colour plates and include black and white pictures within the text. The book opens with 20 pages of colour photographs which convey the atmosphere and beauty of the medieval city clustered around the Haram with the Dome of the Rock at its centre.

There are two parts to this volume; the first deals with the historical development of Islamic Jerusalem up to the end of the Mamluk period, the second and larger part is the catalogue of extant buildings.

Part I occupies 69 pages which illustrate the nature of the city through a series of essays on its

historical and physical development. The short section on The City (pp. 40-42) is a useful and succinct account of the physical constraints of building within the city. The account contains much surprising information such as the fact that Jerusalem's annual rainfall is about the same as that of London, or that "... Mamluk builders actively endeavoured to limit the damaging effects of earthquakes" (p.41). However most of part I is devoted to the development of Jerusalem as an Islamic city. The significance of the reconquest of the city from the Crusaders is stressed in the section on *Crusader and Ayyubid remains* where it states: "The process of reconsecration took various forms: ecclesiastical buildings were demolished or converted; everywhere Christian symbols were replaced by Islamic ones".

Throughout the book one is struck by the extraordinary wealth of historical detail, much of it derived from the recently discovered Haram documents (edited by Donald Little). Particularly interesting is the section on religious foundations which explains the motives, economics and functions of the religious institutions which account for most of the buildings in this book (pp. 65-74).

The catalogue in Part II lists some 64 buildings which represent more than three-quarters of the Mamluk buildings known to have existed in Jerusalem. It is here that the real value of the work is apparent as a record of probably the most complete surviving medieval city in the Middle East. Each entry is dealt with in the same way, starting with the various names of the building and its date of construction. It is good to see that the name of each building is also written in arabic script which looks much more elegant than the English transliteration with its diacriticals. The entries are dealt with under four headings which are: location, site and building, history and architecture.

The location of a building is described and indicated on a map of the city which appears at the top left-hand side of each entry. The extant building or buildings are then described.

Buildings range from a single structure such as the North East Qanāṭir (a triple arched portico, pp. 221-2) to a large group of buildings such as the Sūq al-Qaṭṭānīn, which is a large complex including a covered market with shops on either side and monumental entrances at either end, living quarters above the shops, two public baths and a khān (pp. 273-298).

Often the most interesting part of an entry is that dealing with the history of a building. Thus when Shaykh Burhān al-Dīn decided to build a minaret (now known as the Ṣalāḥiyya minaret) "... the christians of Jerusalem were very upset because it was to be above the Church of the Holy Sepulchre. A group of them offered the shaykh a lot of money to stop its construction" (p.517). Needless to say the shaykh refused the offer and the minaret was built.

The architectural part of each entry is a modern architect's expert appreciation of the design of a building. It is in this section that one gets a description of details which make Mamluk architecture so distinctively fine such as murqarnas mouldings, joggled vousoirs, and the use of ablaq (alternating layers of dark and light stone).

The importance of this work to the archaeologist lies in its attitude towards building conservation. Burgoyne stresses the advantage of "bare-foot conservation" against the "... overzealous restoration of groups of historic buildings and their conversion into sterile artists' colonies" (p. 101). It is argued that many of the buildings have survived so well simply because they have been in continuous use. Similarly there is much to be learnt from the methods employed in the survey which demonstrate how much can be achieved (in terms of information and understanding) from an historical site without recourse to archaeological excavation.

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CAUVIN, Marie-Claire and COQUEUGNIOT, Eric. *Techniques d'échantillonnage et analyse spatiale: le campement épipaléolithique de Nadaouiyeh 2 (El Kowm, Syrie)*; avec le collaboration de Christine Chataigner et de Jean-Marie Le Tensorer. Oxford: British Archaeological Reports, 1989. [6], 168p; 105 figs; 2 plans. (BAR International Series, 522; Maison de l'Orient Méditerranée Archaeological series, no. 6) ISBN 0-86954-663-2 £11.00

This work demonstrates how much cultural information can be extracted from a difficult-to-study site when a well-planned programme of sampling techniques, spatial analyses and other statistical procedures are applied. Nadaouieh 2 is a large (2500m²) and rich, undisturbed, Epipalaeolithic surface station of the Syrian desert steppe, situated within the El-Kowm oasis basin north of Palmyra. The site was chosen for study by members of the French Mission to El-Kowm, directed by J. Cauvin, in order to test the cost-effectiveness of the field methods. The volume includes contributions by C. Chataigner and J. Le Tensorer.

As with many French texts, the Table of Contents is placed at the end. A useful abstract in English starts the volume, and an Introduction and first chapter describe the aims of study and the initial field work. Although no geomorphological evidence is presented, (such as the type of soil(s) or rock underlying the site), on the basis of topographic measurements the authors regard the site as undisturbed except by aeolian deflation. A system of sampling was necessary, given the extent and richness of the artifact spread, and given the need to know whether the surface material overlay earlier occupation layers, was a palimpsest of one culture (or of several formed by deflation) or whether much displacement by weathering and animal grazing had occurred. The eventual grid systems allowed collection from a "stratified random sample", and a "stratified systematic unaligned sample", among others.

Chapters 3 and 4 are devoted to the technical, typological and morphological classification of the artifacts in every sample. This showed that there was only one industry, belonging to the Geometric Kebaran complex. A brief review of contemporary or similar trapeze industries in the Near East indicated that none had exactly the same traits. Curiously, what should have been a relevant case, Site 50 at Palmyra, is mentioned only in a footnote without bibliographic reference. In Chapter 6 the five sampling methods and their results and utility are compared and evaluated.

Chapter 7 examines the spatial aspect, that is the distribution across the site of features (hearths) and of each artifact class as revealed by the sampling. Chapter 8 unites the conclusions and proposes an interpretation as to the lifestyle of the Kebarans which could explain the unusual artifact distribution: more cores to the west, retouched microliths to the east, debitage at the centre.

Without the careful methods used in the field and the considerable amount of laboratory work involved (even though aided by use of computers once the team was back in France), much interesting data would not have been recovered or even suspected of being present. There is much here to inspire statistically-minded archaeologists and palaeoethnologists, and the work is well illustrated from both aspects.

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CHADWICK, J. [et al.] *Corpus of Mycenaean inscriptions from Knossos: Vol. 1: (1-1063)*. Cambridge: Cambridge University Press; Roma, Edizioni dell'Ateneo, 1986. xv, 433p; illus. (Incunabula graeca, vol. 88) ISBN 0-521-32022-4 Price not given.

This first volume of the *Corpus of Mycenaean inscriptions from Knossos* (COMIK 1) presents tablets 1-1063 of the Knossos Archive. It follows on from the publication of Evans: *Scripta Minoa II* (published in 1952; edited and supplemented by J. L. Myres) and the editions of the *Knossos Tablets in Transliteration* following the decipherment of Linear B in 1952 by Michael Ventris. The latest edition of the *Knossos Tablets* i.e. KT5 was published as a supplement to *MINOS* by J. T. Killen and J. -P. Olivier in 1989, and this work along with the first volume of *COMIK* are the working tools of those wishing to study the Knossos Archive.

Each tablet is presented at a scale of 1:1 by a photograph and a drawing, and each is also accompanied by the transliterated text below. Each transliteration is headed by details which denote to which set the tablet belongs; the serial number and any joined numbered fragments, or fr. to denote new unnumbered fragments from the c. 3000 from the original excavations of Evans but which were only rediscovered in 1984. These new fragments are now the subject of a research programme to join and incorporate them into the Knossos Archive in order to make more complete our understanding of these texts. Also each tablet transcription is headed by the present location of the Linear B tablet if not in Heraklion Museum, and the find-spot at Knossos and scribal hand to which it is attributed by J -P. Olivier, if this is known.

For example on p. 9, the tablet Fp 13 is presented. The clear presentation of photograph, drawing and transliterated text occupies two-thirds of the slightly larger than A4 format. The photograph shows the actual state of this tablet, along with the OIL ideograms which enable us to understand the context of this tablet as a list

of quantities of oil with religious connections. Below this is a drawing at the same scale, which facilitates a reading of the Linear B signs of the original inscription by distinguishing between deliberate and accidental marks. Then below is the heading, in this case Fp (1) which denotes that the tablet belongs to the class F (the subject of which is OIL) and the set Fp which is concerned with oil in a religious context. Then is given the number of the tablet within the Knossian Archive i.e. 13, followed by BM to denote that the tablet is now in the British Museum and not in Heraklion Museum; and then A which denotes the find-spot as the room which contained the clay chest with Linear B tablets; and finally the tablet is ascribed to the hand of scribe 138. Below this heading are the 3 transliterated lines of the text which detail oil offered in religious circumstances e.g. pa-si-te-oi-i = $\pi\alpha\sigma\theta\epsilon\omicron\iota\sigma\iota$ = "to all the gods" and a-ne-mo-im -je-re-ja = $\alpha\nu\acute{\epsilon}\mu\omega\nu \lambda\epsilon\rho\epsilon\iota\alpha$ = "priestess of the winds". Then below the text are notes, which in this case explain that some signs are over previously erased signs.

Thus the above example shows how each tablet of the corpus is presented in such a way that the state of the original tablet can be seen: the Linear B signs of the drawing facilitate the reading of the text by those familiar with the syllabary of Linear B; and the transliterated text can be read by those familiar with Homeric Greek. For the Linear B script conveys the sounds of what is termed Mycenaean Greek, and is an early form of the Greek language, some 5-700 years before Homer.

Thus this volume of *COMIK* makes available the original documents but also enables the student of Greek, but not Linear B, to understand the transliterated texts and to become familiar with the syllabograms of Linear B. This epigraphic work does not discuss the many archaeological problems of Knossos nor the subject-matters of these administrative documents of the Late Bronze Age Palace of Knossos. What we have here is a clear, ordered presentation of the tablets which enables the

reader to get closer to the original documents. This work is a valuable working tool for those who wish to study the Linear B tablets of Knossos, which were found 90 years ago by Sir Arthur Evans, deciphered less than 40 years ago by Michael Ventris and are now available for study by all.

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CHAKRABARTI, Dilip K. *Theoretical issues in Indian archaeology*. New Delhi, Munshiram Manoharlal, 1988. xii, 148p. ISBN 81-215-0443-5 Rs 120.

A little more than a decade earlier, Jacobsen wrote that the contemporary trends in South Asian archaeology gave "the observer an impression not of Europe of 1860 but of United States archaeology of 1960" (1979 : 468). Archaeology in India has come of age further and the book under review is an example of that.

The author of this book needs no introduction in South Asian archaeology. This book may be regarded as a complementary work to his previous volume *A History of Indian Archaeology*. The present work, consisting of 8 chapters, is the result of the 8 seminars the author had given at the Institut de Civilisation Indienne, Paris in 1986.

The book begins with a history of archaeology in India. According to the author, systematic study of antiquity in India can be traced back to the accounts of the European travellers between the 16th and 18th centuries, such as Pietro della Valle, Anquetil du Perron and Carsten Niebuhr. This trend also continued after the formation of the Asiatic Society in Calcutta in 1784. With regard to diffusion, the author points out, "a pre-evolutionary concept in its origins, the idea of diffusion has derived its

persistent strength in Indian archaeology from its link-up with some of the pervasive historical, linguistic and 'racial' notions of ancient India" (p. 21). It is regarded pre-evolutionary because of the views of Sir William Jones and Thomas Maurice expressed before the mid-19th century, the former considering India as a recipient of diffusionary trends from outside and the latter even believing an Indian origin of the Druids. However, after the mid-19th century, when the British Raj was strengthened, India was always believed to be at the receiving end in the diffusionary scheme. It took two forms: (a) diffusion of ideas and (b) migration of people (p. 23). For example, while Wheeler thought that the idea of civilisation had come from Mesopotamia to the Indus, Gordon believed that Indus civilisation was a Mesopotamian colony and the issue was whether the colonists arrived by land or sea. Moreover, various diffusionary postulates are also discussed, their inadequacies pointed out and arguments made for indigenous evolution.

As to the problem of correlation between archaeology and literature, there is hardly any ancient Indian literary account describing the actual process of smelting, collection and preparation of ores with regard to metallurgy (p. 38) and, except for the varieties of crops and legumes and their use in ritual, nothing is known from ancient literature about agriculture (p. 39). As the author points out "it is impossible to arrive at a meaningful history of most of the materials items of life in ancient India on the basis of literary data because of their meagreness, stereotyped character, chronological uncertainties and the geographical limitations of their applicability" (p. 40). The major problem of correlation for the proto-historic period is the dichotomy of time-span between the Vedas, usually dated between c.1500-600 B.C. by historians on the one hand and the archeological record of the proto-historic period which spans from about 7000 B.C. to c 700-600 B.C. on the

other. In order to get rid of this "chaos", Chakrabarti advocates shunning the short chronology of the Vedic texts.

In his discussion on geographical approaches, he points out that Subbarao's scheme of 3 types of regions for India, despite its limitations, emphasises "the multilineal process of cultural development in Indian history and archaeology" (p. 52). Taking note of the unevenness of chronology and cultural development, Chakrabarti stresses the difficulties of discussing Indian archaeology in terms of neat stages (such as mesolithic, neolithic, chalcolithic etc.) on a pan-Indian scale.

In the chapter "Prehistory, Food-production and Urbanisation", the author points out two main trends in prehistory. The first is the "environmental interpretation of the geoarchaeological stratigraphy" (p. 66) and the second is "the settlement subsistence studies" (p. 66). As regards the issue of transition to food production the most comprehensive evidence comes from Mehrgarh in the Kachhi valley in Pakistan. This is still a problem in most parts of India despite evidence from the Vindhyan fringes of Ganga valley and Chhriand in Bihar. The main reasons are the limited knowledge of the "mesolithic" stage in different regions and the inadequate palaeo-botanical evidence (p. 78). The Harappan urbanisation is a process of evolution from the "Early Harappan" to "Mature Harappan" phase, although knowledge of writing and grids-patterned settlements still remain intriguing. After the decline of Harappna urbanisation, there was an expansion of the village farming communities and the archaeological clue to early historical urbanisation lies in the changes in the settlement patterns, caused by complex socio-economic-political factors. As to agriculture, a brief review of the archaeological evidence of different crops and legumes is made with a special emphasis on rice. On metallurgy, various metals are discussed with regard to their archaeological contexts, probable sources and old mining along with some relevant ethnographic accounts. The

archaeological evidence of large scale zinc manufacturing by distillation process at Zawar in Rajasthan - dated to pre-Christian era and believed to be an Indian invention - is a landmark in Indian metallurgy.

On trade, argument is made for a limited contact zone for the basic raw materials and a more extensive contact zone (direct or indirect) for luxury items. Long-distance trade is assumed to be characterised by peddler-trading. Although Chakrabarti makes a comprehensive analysis of India's westerly trade, he misses some recent evidence brought to light in the last two decades with regard to trade with Southeast Asia (for a summary of such evidence, see Glover 1989).

The work has some limitations. Ethno-archaeology is an important aspect of archaeological theory. Although ethnographical study is taken into account in the discussion on prehistory and metallurgy, no comprehensive analysis is made with regard to ethno-archaeology. Moreover, it would have been better, if the author would have used a more exhaustive bibliography taking into account all the references that he has cited in the text.

Despite these, this book is recommended to all interested in South Asian archaeology as it contains an up-to-date review of different aspects of Indian archaeology with an emphasis on indigenous evolution as an explanation of culture change.

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CHAMPION, T.C. and MEGAW, J.V.S.
Settlement and society: aspects of West European prehistory in the first millennium B.C. Leicester: Leicester University Press, 1985. viii, 243p; illus. ISBN 0-7185-1232-4 (Hbk.); ISBN 0-7185-1256-1 (pbk.) Hbk: £20.00; pbk: £6.95

The European Iron Age has mercifully survived the assaults of the theorists. It has not been subjected to the dehumanisation that has befallen most other periods of prehistory. Perhaps, as Champion suggests, this is because the database is too large and 'it is easier to theorize when you have little evidence to refute your theories'. This, he argues may be illusory and the papers in this volume represent 'a partial view of part of the area and content of a period of prehistory which, despite a somewhat deceptive appearance of plentiful material evidence, has remained intractable of analysis and interpretation'.

A book of collected papers given at a conference is always likely to appear disjointed and unbalanced. This one is the result of a conference on European Iron Age society organised by the Prehistoric Society in 1981. It contains nothing about the Late La Tène period and only one paper deals with non-Celtic society. Nevertheless, there is much of value to students of the Iron Age.

After an introduction in which he reviews the current position in Iron Age studies, Champion considers the thorny problem of relating the archaeology of the period to the

literary sources. In certain areas he feels that the literary sources have value but they should not be used to attempt to answer questions which their nature does not permit them to answer.

Three of the papers are concerned with specific regions. Two are regional studies whilst the third is a statistical study of grave contents. Demoule and Ilett review the Aisne valley whilst Stjernquist considers the non-Celtic society in eastern Scania. In his study of the contents of graves, Lorenz considers regional organisation by comparing results in the Marne-Mosel area with those in the Rhine-Danube region. His results are interesting but the fact that he did not look for the social and political reasons behind them is to be regretted.

The overlap, or lack of it, between the Hallstatt and La Tène periods in central Europe has been a life long study for Ludwig Pauli. In his paper he considers the political setting and looks particularly at the problems of Celtic migration. He argues that to discover the reason for the migrations, the 'unfortunate break' between the two periods must be removed. Only then can the 'fifth-century B.C. crisis' be revealed and studied.

Two papers look at craft production and exchange. Sara Champion takes the use of coral as her prime example and considers the problem of ascribing products to their place of production. Anyone who has attempted this difficult task will recognise many of the points which she makes. Perhaps they will also agree, at least in part, with Welbourn's highly sceptical approach and his statement that the ethnographic record does not encourage the belief that archaeology can resolve such problems. Underlying his paper is the ongoing debate which merely illustrates the contrast in evidence between anthropology and archaeology. Megaw also considers craftsmen. In his paper he attempts, once again, to establish a relationship between the art of the La Tène world, the craftsmen who produced it, and the society which they served.

The thoughts of Nash concerning Celtic society have now been expounded in a number of papers. This particular one looks at the decline of the West Hallstatt chiefdoms and the squeezing out of the Etruscans in the western Mediterranean. The theory reads well but there is little archaeological evidence given to support it. One is left with the feeling that an acceptance of her theories of political expansion and warrior societies is necessary to acceptance of her arguments. If this underpinning is removed the value of her thesis is called into question. The lack of supporting evidence does not encourage the initial acceptance.

Wells also writes on his well known theme, in his case that of trade relations between the barbarians and the Mediterranean world. He does use the evidence to generate the theory but there are still sweeping generalisations. Trade was undoubtedly an important influence on society but to put forward mono-causal solutions is unlikely to result in a lasting thesis.

By contrast Fulford, in a very thought provoking paper, looks at the occurrence of Roman material in barbarian contexts and considers its meaning. The deficiencies in the untestable hypotheses of Nash are exposed and there is a plea for the avoidance of the sweeping generalisations which are inherent in the approach of Wells and others. Fulford takes the evidence and makes intelligent enquiries as to what it might mean. He does not attempt to produce generalisations. His plea is for a measured consideration of interaction and the comparison of like with like. Such consideration, Fulford argues, should take in all the evidence rather than amassing only that which fits the theory.

There is much good material in this volume and those responsible for the production of it must be congratulated on their preserverance in bringing the papers into print. By doing so they have fuelled a number of debates. There is much to provoke thought and many questions have been raised. Not the least of these is

whether Fulford's is a voice in the wilderness, or whether sanity might yet return to the study of prehistory?

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CLARK, Grahame. *Economic prehistory: papers on archaeology.* Cambridge: Cambridge University Press, 1989. xviii, 638p; illus. ISBN 0-521-34481-6 £50.00

This fine volume offered to Grahame Clark by his publishers, Cambridge University Press, comprises 32 papers written between 1942 and 1985, some of them not otherwise easily accessible, and represents a selection from Clark's mammoth contribution to prehistory. A glance at the full bibliography of Clark's published works from 1928 to 1989, which forms a most valuable section of this volume, gives some idea of the vast and global range of the author's work on all aspects of archaeology - and we may hope for yet more to come! Much of it is well-known to prehistorians: his seminal works on the mesolithic - *The Mesolithic Age in Britain* (1932) and *The Mesolithic Settlement of Northern Europe* (1936) - remained essential reading for all students of European prehistory well into the 1950's and beyond. Then came the pioneering works: *Archaeology and Society*, *Prehistoric Europe: the economic basis* and *World prehistory*, published at roughly 10 year intervals and, in the case of the first and third, running to several editions with translation into several languages. More books and papers followed, and now this volume which vividly illustrates the development and expansion of Clark's work over more than half a century.

The volume is divided into four sections: *Economic prehistory*, *World prehistory*, *Archaeology and society*, and a *Retrospective*. The thirteen papers in the first section deal with

environmental and economic factors. In the first of these, *Bees in antiquity* (1942), Clark admits that he set out to "change the course of archaeological research" by stressing the need to study how people lived in society and the social activities involved, thereby moving away from the then-current artifact-orientated approach, or "object-fetishism", as Clark called it. Today's archaeologists take such socio-economic research for granted, but in the 1940's and even 1950's, it was new and challenging. Certainly as regards bees, much research has been done since Clark's paper. Much of it published quite recently. This covers not only the ancient world and historic contexts, which have long been known, but also the role of bees among primitive groups such as the Australian aborigines and the Bushmen, in particular the evidence from rock art, while in Britain the study of pot residues has identified the use of honey in prehistoric contexts. However, only one major book has appeared devoted specifically to the archaeology of bees: that by E. Crane published in 1983.

Six more papers dealing with subsistence activities then follow: on water, forest clearance, fowling, farming, seal hunting and the importance of whales. *Water in Antiquity* (1944), like its predecessor on bees, breaks new ground by its ecological approach and traces the importance of adequate water supplies to human communities from the Old Stone Age to our present hydro-electric era. The next six papers were written over a greater period of time, and include folk culture and European prehistory (1951), the traffic in stone axes and adzes (1965) seen in both Europe and in Australasia, and the importance of coastal settlement in European prehistory (1983) - a subject on which Clark has written with particular authority since his early work on the mesolithic of Northern Europe.

The second section, entitled *World prehistory*, ranges widely, as would be expected, with papers on the Australian Stone Age (1968) and human expansion into the New World and Australia (1971), making the point that man had

occupied most of the globe before he had learnt to farm. The spatial expansion achieved by early hunter-gatherers was truly astonishing, leaving as it did only the circumpolar zone and the scattered Pacific Islands to be occupied in our era. A paper on seasonality and lithic assemblages, prepared for the Pericot *Festschrift* (1973), considers the probability of early hunter-gatherers "cropping or harvesting a broad range of natural products ... systematically and in an orderly manner". This concept is based on certain Australian aboriginal groups whose movements were the "direct outcome of the knowledge they had of different sources of food at various times of the year".

The need to re-orientate our thoughts on man's adaptation to modern conditions is expressed in *Neothermal orientations* (1978) while the need for partnership between the humanities and the natural sciences in studying early agriculture is stressed in *Domestication and social evolution* (1976). In an overview of the millennia - *Primitive man as hunter, fisher, forager and farmer* - given at Wolfson College in 1978 Clark expresses his firmly held belief that "hierarchy and social inequality were not merely the invariable accompaniment but the formative factor in the emergence of high cultures". The final article in this section, *World prehistory and natural science*, was given as the Jacobsen Memorial Lecture in 1980. After a brilliant exposé of world archaeology and its development since the 1939-45 war, the history of Quarternary Research and Experimental Archaeology are touched upon. No doubt as an appropriate compliment to Danish scientists and scholars. Clark ends by highlighting the danger of homogenisation which threatens our heritage and the need to maintain harmony with the natural world, but not by reverting to nature, since that - quoting Karl Popper - would mean a "return to the beasts".

Of the four articles in the third section, the first describes the history and structure of state archaeology in Britain up to the time the piece was written (1934). It makes interesting reading

in the light of all that has happened since, not least in the last few years with the 'privatisation' of much of the nation's heritage. The next two pieces deal with the value of prehistory and anthropology: first, in schools in post-war Britain with *Education and the study of man*; second, in *Prehistory and human behaviour*, delivered to the American Philosophical Society in 1956, stressing the contribution of archaeology to our awareness of the past. The longest and most recent article in this section is entitled *Archaeology and human diversity* (1979) and reaffirms the author's belief in the importance of a hierarchical society. Clark contends that "for long ages the course of social evolution was benign, in that it promoted diversity and so enriched mankind ..." but that in our own time "natural science, machine technology and egalitarian philosophies ... threaten those diverse expressions of the human spirit that we term civilisations". This piece is a damning indictment of the homogenisation of culture in the present day, and heralds Clark's penultimate book, *Symbols of excellence: precious materials as expressions of status*, published in 1986 also by the CUP. But he points out that our archaeological knowledge of past human diversity should forwarn us of the threats of modern society and so help to guard against losing our essential human identity.

Part IV - *Retrospect* - is perhaps the most interesting of the four sections: a masterly paper in *Antiquity* (1966) describes the gradual change in thinking from 'invasion hypothesis' to indigenous evolution as explanation for culture change during the second half of the 20th century. Next, Clark recounts and then elaborates on his own work at Star Carr in a monograph originally published in America in 1972. As the sub-title implies - *A case study in bioarchaeology* - new developments are taken into account and a reinterpretation of the site attempted. The next paper, also for an American publication, is a revealing account of how and why *Prehistoric Europe: the economic basis* came to be written, and "how the approach and concepts embodied

in it have contributed to and been modified by the progress of research". The last three articles deal with two great archaeologists and a great archaeological institution. The first, *Prehistory since Childe*, delivered as the first Gordon Childe Memorial Lecture at the Institute of Archaeology, London, in 1975, and published in this *Bulletin* the succeeding year, pays tribute to Childe and his impact on prehistoric studies, then discusses the ecological approach to archaeology which has been developed since his time. *Archaeology in India since Wheeler* (1979) was the second of two lectures given in New Delhi in honour of Sir Mortimer Wheeler. In it Clark considers the work done in Indian archaeology since the late 1950's in the field of excavation, interdisciplinary research and ecological and anthropological approaches. He ends the paper on a favorite theme: cultural diversity and the need to proclaim it and seek to halt the "progressive dehumanisation of mankind".

The volume ends with one of Clark's most recent papers, given at the Jubilee meeting of the Prehistoric Society in Norwich in March 1985. Its title, *The Prehistoric Society: from East Anglia to the world*, gives a memorable account of the early days before the society dropped 'East Anglia' from its title in 1935, touching on the well-known eolith dispute among other controversial topics. He then describes the later expansion of the society to include prehistorians not only on a country-wide, but on a world-wide basis. It was, of course, highly appropriate that Clark should deliver this Jubilee lecture, since he had joined the Society in 1929, along with Professor Stuart Piggott, and as editor of the *Proceedings* for many years was instrumental in publishing the results of prehistoric research from all over the world. Indeed it must be largely due to Professor Clark and his colleagues that the former regional society developed as it did, into an important national organisation of international stature.

This rich and weighty volume is beautifully produced, as one would expect from the publisher. For libraries and all who admire Clark's work, this collection of well-selected papers would be a valuable acquisition, despite the rather high price. The Cambridge University Press are to be warmly congratulated on their fine tribute to a great prehistorian.

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CLARK, Grahame. *Prehistory at Cambridge and beyond.* Cambridge: Cambridge University Press, 1989. x, 176p; 61 illus. ISBN 0-521-35031-x £19.50

Rather than an autobiography, which some other distinguished British archaeologists have felt moved to write, Grahame Clark here records the development and personalities of a whole university department: the department of Prehistoric Archaeology at Cambridge which he himself headed from 1952 to 1974. It is explained in the preface that as far as the department is concerned, the account ends with the author's retirement at that latter date but that 'The doings of Cambridge prehistorians on the other hand have been followed down to the present'. This must be understood to mean the subsequent doings of prehistorians who were associated with the department *before 1974*, since otherwise there are some surprising omissions.

This account covers the time when Cambridge was the only university in Britain to teach undergraduates for a degree in Prehistoric Archaeology and not surprisingly many, perhaps most, of the professional archaeologists employed at British and Commonwealth institutions in the late '50s, '60s and early '70s were connected in one way or another with the Cambridge department (this reviewer included).

It is to these that Grahame Clark's account will appeal most. An amazing number of graduates are recalled and generously assessed, and the cumulative roll-call is impressive indeed. To others, that is to say most of the current active archaeologists here and abroad, the enterprise may seem less riveting. Arcane Cambridge practices, for example the significance accorded the social centre (college) to which an archaeologist was attached, may seem understandable to associated old boys, but hardly relevant to the University's place in mainstream archaeology. Clark's views on the 'New Archaeology' and how this affected or failed to affect his department, and whether this was for good or bad, the general trend in British university teaching to 'theoretical' rather than what he might regard as 'real' archaeology - in other words, the attitude of himself and colleagues to archaeology outside as well as inside the Cambridge tradition, is what non-Cambridge archaeologists might hope to read more about. However, Clark could reply with complete justification that his own general views on archaeology may be read elsewhere: after all, his prolific output of both specialised and general works is universally known and appreciated. His intentions in this latest book are clear and explicit: an account (and in effect a justification) of the development of an academic discipline at one place over a relatively short time. Certainly his own vital contribution, most modestly treated here, represents one of the major landmarks in the development of the subject, and it is fascinating to see how he relates this to the work of colleagues and students.

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CLAYTON, Peter and PRICE, Martin (eds.)
The seven wonders of the ancient world.
London: Routledge, 1988 xiii, 178p; 88
figs; 1 map. ISBN 0-415-0279-6 (Hbk);
0-415-05036-7 (Pbk); Hbk £17.95 pbk:
£6.99

To be asked to name one or more of the Seven Wonders of the (Ancient) World is a question appropriate to University Challenge or Mastermind. Here is the book which will provide the aspiring contestant with more than just the plain answers, since it lists in its appendix alternative Wonders not now included in the canon together with those authorities of antiquity who helped to fix that canon. (It is interesting to note in passing that the Cretan Labyrinth and Noah's Ark were once candidates for inclusion.) Of the now accepted Seven, all except the Pyramids of Giza have vanished from the surface of the earth and are matters for archaeological reconstruction; indeed The Hanging Gardens of Babylon have vanished so thoroughly that their actual existence is a matter of conflicting speculations.

Peter Clayton and Martin Price have done a neat, workmanlike job with this little book, so that it contrives to be both popular and scholarly. Renaissance speculation and Romantic dream are disentangled from archaeological probability, an overdue exercise given the inaccuracies still perpetuated in some modern works of reference. Each Wonder is described by a different specialist. The editors themselves undertake three of the Wonders as well as the ancillary matter: Peter Clayton takes us into the Great Pyramid of Giza and round the Pharos at Alexandria while Martin Price reconstructs the Statue of Zeus at Olympia. After that Irving L. Finkel tackles the vexed location and design of the Hanging Gardens; Bluma Trell hunts the Temple of Artemis at Ephesos through coin collections and medieval manuscripts, Geoffrey Waywell shows us the Mausoleum at Halicarnassus, and the Colossus of Rhodes is investigated by Reynold Higgins.

Some of the conclusions, notably about the Hanging Gardens will not please the holders of some cherished theories, but the individual accounts are stimulating to the curiosity and enjoyably written. There are useful bibliographies and a very varied selection of illustrations to whet the appetite for further investigation. In its paperback format particularly, it is precisely the kind of book to cram into the luggage for use or entertainment while on vacation. It is equally a useful addition to library shelves as a quick reference source.

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CLUTTON-BROCK, Juliet (ed.) *The walking larder: patterns of domestication, pastoralism and predation: [papers from the World Archaeological Congress held in Southampton, in 1986.]* London: Unwin Hyman, 1989. xxii, 368p; illus. (One world archaeology, 2) ISBN 0-04-445013-3 (Hbk.); ISBN 0-0445900-9 (pbk.) Hbk: £40.00; pbk: £14.95

This book will fascinate laymen as well as scholars. It is a collection of papers by 33 participants to a session on the theme: "Cultural attitudes to animals" held in 1986 at the World Archaeological Conference in Southampton. The sub-title indicates the main function of kept animals: the provision of food in the form of livestock, i.e. meat on the hoof. However, the aim of the organisers (in this case P. Ucko, who writes the Foreword) was to elicit evidence on the many relationships between humans and animals by emphasising concepts and behaviour rather than project-reports and osteological analyses. The contributors consist not only of archaeologists and anthropologists, but non-academics with personal expertise in specialised animal management.

The editor, who writes the Preface and Introductions to each section, has divided the papers according to three themes. The first, *Domestication*, contains essays by such well known authors as S. Bottema, S. Bokonyi, P. Ducos and R. Meadow, and ranges in subject matter from the pet-keeping phenomenon, feral mammals of the Mediterranean Islands, the domestication of the horse in China, wild goose rearing in Holland and the introduction of agriculture to Spain, to mention only five of the twelve essays. There are two useful models for the process of domestication (F. Hole; H. P. Uerpmann). In the second part, *Pastoralism*, also with twelve contributors, we go from S. America and the domestication of the llama in prehispanic Peru (T. McGreevy) and the effect of this on Inca ideology (G. Brotherston), to Africa and the Masai cattle herders (J. Galaty), to Lappland and the role of the draught and semi-wild reindeer (P. Aikio), as well as to southwestern Eurasia and a study of sheep flock leaders (Y. Tani), among others.

In the third part *Predation*, the emphasis of the six papers is on hunting/gathering/foraging, from Tonga and Tasmania to Scotland and Panama, of fish, molluscs and other marine resources (D. Sloan; R. Cook and A. Ranere; D. Spenneman; S. Colley and R. Jones). There is a thought provoking study as to whether it was grizzly bears and their huge Ice-Age precursors that kept humans out of western North America for so long, especially California (V. Geist). Finally, there are two articles on birds: the mutualism of honeyguides and man in Africa (A. Hooper) and the exploitation of birds in Mousterian Gibraltar and Spain (A. Eastham).

The diversity of the geographic locations and the timescales covered by these three authors vividly reveal the wide variety of man/animal interactions and the ingenuity of early folk in adapting their lifeways (whether in permanent dwelling or movable camps) to animals and *vice versa*; somewhat less attention is given to ritual, symbolic or artistic usage of animals, but there is an unexpected relevance of many of the

concepts to archaeology. Without a reliable, attainable, supply of food to support sedentism, archaeological remains would be sparse indeed.

Each paper is copiously referenced, many are illustrated and there is a well-organised index.

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COLLIS, John *The European Iron Age*.
London: Batsford, 1984. 192p; illus. ISBN
0-7134-3451-1 (Hbk); 0-7134-3452-x
(pbk). Hbk: £17.95; pbk: £9.95

Fortune aids the brave or favours fools. The reader of this book has to decide whether he follows Terence or Ben Jonson when he reads what the publishers describe as an 'ambitious study'. Few students of the European Iron Age will dispute John Collis' premise that there was a need for a general introduction to the period. The problems inherent in one person attempting such an exercise were the major factor in the lack of such a book. So Collis set out to "rashly charge into the gap". Modestly he admits that it is only a start and others will hopefully follow.

His intention was to describe the processes that underlay the development of the classical civilisations and the relationship which those civilisations had with the rest of Europe. His main concern is with reaction and change in southern and central Europe during the first millennium B.C. He is open and honest in declaring that his approach is grounded in geography and anthropology. The introductory chapter discusses his own and other attitudes to the past and will be a welcome synopsis for the students for which this book is intended. Collis then surveys his topic chronologically.

It is refreshing to read a textbook on prehistory which starts with the evidence and attempts to explain. There is no attempt to force selected facts into pre-conceived generalisations. Collis has selected three main themes to cover

the period. The arrival of iron and the changes it brought about introduce the reader to the world of the Hallstatt C period. Further changes are then attributed to trade and, finally, the rise of more complex societies based on oppida and using coinage is viewed in its relationship to Roman expansion.

Since he is dealing with trends and processes Collis states that "a precise chronology is hardly necessary". At the time this leaves the reader, and perhaps the writer, with problems. Can his claim that "all dates used in this book are derived from historical documentation" really be believed? The comment that the "sixth and fifth centuries are especially well dated by means of Greek and Etruscan imports" would receive no plaudits from Dehn and Frey. The problem of the transition from Late Hallstatt to La Tène A is glossed over. This same lack of clarity on chronological issues also leads him to accept the hypothesis of Schauer concerning the origins of the Hallstatt C sword. Whilst many British scholars may be accused of isolationism, Collis is firmly in the forefront of the Europhiles. In this instant his knowledge of the continental material presumably exceeds that of the British. It is some time since Burgess pointed out the errors in Schauer's thinking. (Burgess, 1979, 277-8).

In a book which claims that its central theme is change, it is surprising to find the author resorting to over-simplistic explanations. Recent work on the bronze-iron transition has highlighted the social factors which retarded the introduction of the latter metal. Collis only sees two possible reasons: the prestige nature of the metal and the lack of expertise of the craftsmen. He does refer to a key factor on this discussion but without realising its import. The fact that elaborate ribbing, easily cast in bronze is replicated in the early iron swords surely suggests that the new metal was only acceptable if it came in recognised forms - a social constraint.

Some of Collis' statements on Hallstatt C swords must be criticised. His own map (p. 77) shows that the Gundlingen sword can hardly be called "an Atlantic type". It is also distressing

to read that these swords were the "end of the slash and thrust sword tradition in Europe." Statements such as this show a basic ignorance of swordmanship which is all too prevalent amongst archaeologists. The article by Colonel Gordon (1953) could be read to advantage by anyone wishing to know about the use of swords. When the reader is introduced to the La Tène period he senses that Collis is more at home with the material.

The anthropological approach produces some interesting comparisons such as that which relates the trade which took the 'Greek' crater to Vix and that between white traders and the west African royal courts. Geographical and anthropological concepts come easily to the author but he clearly has problems with more technological matters. His knowledge of metallurgy is suspect. The claim (p. 30) that the alloying of iron and carbon to produce steel is erroneous. In his apparent fascination with technology Collis finds it necessary to explain the processes of pile-welding (pp. 30 & 36) and repoussé work (pp. 50 & 73) twice. It is also difficult to imagine how pottery could be "burnished with elaborate decoration."

The author has not been helped by the format which his publishers have chosen to use. With almost monotonous regularity the concentration of the reader is broken by pages of illustrations often with lengthy captions intruding into the text. On two occasions these interruptions last for ten pages. All too often the captions repeat the main text and the impression that remains is one of reading the same book twice. The double column page is also not a success.

There are a number of minor errors, the most serious placing Cumae on the Greek mainland (p. 51) and the Hallstatt C period in the eighth century B.C. (p. 73), and that two small terrets are enough for a set of chariot fittings (p. 159).

There is little doubt that this book will do more than merely fill a gap. Students will be particularly grateful to Collis for providing them with a concise survey of the period and a good bibliography to lead them into the maze of

continental publications. John Collis has never been afraid to criticise his more insular colleagues and he is to be congratulated for now leaving them with no excuse for insularity. It remains to be seen who will feel confident enough to follow his lead.

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CONGRÈS INTERNATIONAL D'ARCHÉOLOGIE CHRÉTIENNE.

11ème Lyon, Vienne, Grenoble et Aoste.
21-28 September 1986. *Actes*. Rome: École Française de Rome; Pontificio Istituto di Archeologia Cristiana, 1989. 3 vols (2919p); illus. (Collection de l'École Française de Rome, 123; Studi di antichità cristiana, 41)
ISBN 2-7283-0194-8 FF 1,000.00.

The Congress which gave rise to these *Actes* unfolded in Lyon, Vienne, Grenoble, Geneva, and Aosta in late September 1986. Both point clearly to two facts: that French, Swiss and Italian organization is second to none; and real, detailed, thorough excavation, especially of churches, is alive and well in that region. The three volumes start with all the circulars sent out before the gathering and the programme of lectures and tours, as well as the texts of all the speeches of welcome and thanks at the numerous meals, receptions and visits. These are

accompanied by photographs, one of which catches Kenneth Painter (doyen of the four British participants) at the Préfecture du Rhône. After a summary of press reports in France, Switzerland and Italy (pp. cxxiv to cxxvii) there follow all the communications and reports which could be prised out of the contributors in time for publication.

The main theme of the congress which never really got translated into English were the Groupes Episcopales, Gruppi Episcopali or Bischofresidenzen. The aim was to chart the growth in the Roman town and city of the 4th and 5th C. of the combination of cathedral, baptistery, bishop's palace and diocesan offices which could take up, in a small city like Geneva, a quarter of the town. This section starts with a remarkable tour of cathedrals in Italy — the time scale of 3rd to 9th centuries AD is always implied — taking note both of written sources and of archaeological discoveries. Taking Capua almost at random (pp. 92-3) the entry opens with the quotation from the Liber Pontificalis which attributes the building of a cathedral to Constantine the Great. This has to be tied down to one particular church in the centre of the town known to lie under the piazza in front of a modern church. References are given and a map is drawn which is an excellent summary of the present knowledge of the topography of late Roman Capua. And so on to Vercelli. There are further communications going into greater detail on Arian churches in Italy, and then on Parma, Faenza, Ravenna, Reggio Emilia and Ancona. Then the surveys move to modern Yugoslavia, Noel Duval on North Africa, J.P. Sodini on Turkey, Thilo Ulbert on Syria and M. Piccirillo on Arabia and Palestine.

One extra section includes surveys of baptisteries, because for a time in the 4th century only the bishop could baptize, hence a baptistery means a bishop, and bishops suggest Gruppi Episcopali. Then bishops themselves are pursued through inscriptions in both East and West, in Latin and Greek. The paper on the bishop in epigraphy in the West (in Italian) is especially

useful in that it gives good photographs and transcriptions of many mosaic and stone inscriptions on which so much dating depends.

The Italian ration in vol. 2 is again substantial and useful, if lengthy. This is inevitable in sections devoted to the Christian topography of the great cities and *L'Espace des morts*. Reekmans summarizes Rome and gives two very clear maps of the intramural sites and churches (AD 300 - 550, and 550 - 850) and one of the suburbium (AD 300 - 850). Petri gives a very succinct summary of the Regions ecclésiastiques et paroisses romaines which leaves little room for fantasy or wishful thinking on the part of any modern Roman congregation who want to connect their present church to an Imperial foundation. Constantinople (Dagron) is disappointingly thin and suggests that there needs to be more archaeology on the lines of Martin Harrison at S. Polyeuktos, Carthage fares a little better as does Salona, but it is that really a Grande Capitale?, and Alexandria is predictably a disaster area. Antioch and Ephesus do not appear as main studies.

The dead are either in necropoli or sépultures. Of necessity Rome has most space since it has most catacombs. Outside specifically epigraphically attested burials there is little real archaeology here, though Chris Green's Poundbury (pp. 2073-5) does strike a blow for the spade. A further section on the image of the town in (late antique and early Christian) art and literature has useful groups of illustrations but the different papers, pulling in different ways cause duplication, and some uncertainty. Thus towns in catacomb art have a few superb depictions — as in the Hypogeum of the Aurelii — but then have to make up with very fragmentary and schematic oddments. As a result the conclusions are rather thin. The sections on towns in the Ashburnam Pentateuch would have gained if the source of that manuscript were known; the late antique representations of Sodom and Gomorrah burning add a nice taste of brimstone.

Thence to a regional round up and shorter contributions which fill up the rest of vol. 2 and the whole of vol. 3. Very rightly the Alpine Region, in which the conference took place, comes first with a skeletal survey of the excellent archaeological work done from Lyon to Aosta. This puts the plans and the ideas into simple and accessible form, in French, with excellent references and bibliographies. After that we are taken selectively around the Empire, sometimes in note form — Konstantinopol and Kleinasien (pp. 1563 - 1637). Piccirillo on Jordan packs some superb illustrations of plans and mosaics into a small space and Tsafirir gives a useful summary of Christian archaeology in Israel in recent years. There is a summary of recent work in Egypt which forms the only recent guide that I know of to a neglected field. The progress continues round North Africa, to Britain (Kenneth Painter), down the Rhine and Danube to the Balkans and the Black Sea. An index of authors, organisers and collaborators occupies 18 pages, and a topographical index, 84.

Finally, to end my 87th Bulletin review on a forward looking note, some thoughts from the Congress itself and the *Actes*. This is a summary of Early Christian archaeology in easily accessible form, well produced with clear text and excellent illustrations, to which every student of the subject will go for an introduction for many years to come. It is indispensable in any library which aims to cover the subject, and would be very useful as a single catch-all guide for those that do not. It proves that churches and religious monuments are at last taking their place as a proper part of the general study of the past through real archaeological techniques rather than the odd and doctrinal pursuit of dusty Abbés.

Two contrasting memories may make the point more easily. At the Papal audience which Paul VI gave to the delegates of the 9th Congress in Rome in 1975 he shocked the assembly by reminiscing. He welcomed us, he remembered that he, as a student had been through a course of Christian Archaeology - the Monsignori stirred in their seats expecting praise - pause ... and he

thought he had never been more bored. At the 11th Congress for some reason I overheard the director of the Pontifical Institute of Christian Archaeology being gracious to a homely Nun. Conversation was on a general level until the nun took the opportunity to ask "and what Monsignor is this *terre sigillée grise* that people have been talking about?" I expected a social reply, but instead the nun received a slight rebuff for not knowing, and the helpful response was that this was a very valuable type of pottery of the fifth century, essential for dating purposes, about which she must find out if she was to teach her students well.

Early Christian archaeology is growing up.

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COTTON M. Aylwin and MÉTRAUX, Guy P.

R. *The San Rocco villa at Francolise*. London: The British School of Archaeology at Rome and the Institute of Fine Arts, New York University, 1985. xxxiv, 277p; 37pls; 66 figs; 1 plan (fold). (A supplementary publication of the British School of Archaeology at Rome) ISBN 0-904152-08-1 £27.00

The excavations of two Roman villas, Posto and San Rocco, at Francolise in northern Campania, were directed by the late Molly Cotton between 1962 and 1966. The Posto villa, which she published in 1979 (reviewed in the Institute's *Bulletin* 1981, 274-6) was a relatively small working farm. In comparison, San Rocco was a much more substantial site, particularly in its second period. It was situated on a limestone outcrop amid volcanic soils with a marvellous view westwards towards Monte Massico across the Ager Falernus, the source of the famous Falernian wine. The evidence for the villa's

economy, however, indicates grain production and, in its second period, olive oil.

The first building was a house of modest comforts, with the *villa rustica* separated on a terrace below. The construction is dated by a *scutulatum* mosaic floor to 100-90 B.C. In about 50 B.C. (period I A) the internal arrangement of rooms was altered to provide more bedrooms and an axial corridor. A very different social and economic context from this modest family farm is demonstrated by the extensive rebuilding in period II, about 30 B.C. The main residence became much more formal and impressive, with about 40 rooms arranged around a peristyle courtyard, incorporating some parts of the original house. The topographical position was used to effect, with porticos commanding views to NW and SW. A road from the SW separated the *domus* from the *villa rustica*, the working farm building which were constructed around two courtyards. The water supply was almost trebled by the construction of cisterns with a capacity of 1.1 million litres, though one structure previously published as a cistern is now reinterpreted as stables. After about 80 years, a programme of alterations included the insertion of a set of baths in the house, and of oil presses and vats and a tile kiln in the *villa rustica*.

The evidence for all this is set out in an admirably clear report. The site's significance is that it was one of the first Italian villas excavated "systematically in accordance with the standards long accepted in many of the Roman provinces", with particular attention to its chronological development and its economic function. It was initiated as a training excavation by the British School at Rome and the Institute of Fine Arts, New York University, and the meticulous quality of the work is clear in the lucid presentation of the structural evidence and the sequence of buildings' evolution. In a valuable introductory chapter, Alistair Small relates the results to the wider contexts of late Republican colonisation of the area, the network of communications and markets which encouraged its agricultural development, and longer term topographical changes.

For three centuries San Rocco was "a microcosm of larger phenomena in the history of the Roman landscape in Italy and Campania" (p. 78). In period II especially it was characteristic both of a leisurely and hierarchical lifestyle, and of the substantial agricultural efficiency on which that lifestyle depended. What happened to it later is not too clear. It seems to have become ruinous by the early 3rd century. Here, one would have welcomed more than the single concluding paragraph on what the late evidence actually was; particularly since it emerges from the pottery report that African II B oil amphorae (A.D. 210+) were finding their way to San Rocco, implying that its own oil production had ceased.

Indeed, it is a deficiency of the volume that the conclusions about the site are presented in the course of the chapters in which structural periods are described, and take very little account of what is in the specialist reports which follow. For instance, the mosaic floors are of particular interest and variety, and preserve some unusual evidence for their setting-out lines and prefabrication of some parts. Métraux discusses them in justifiable detail in a separate chapter, but little if that is prefigured in earlier chapters where he considers the architecture. Other information in the finds reports, e.g. that glass vessels and windows are in evidence only from period II A onwards, or that the small number of amphorae in period I/I A "suggests but a very modest use of wine", also have broader potential significance for understanding the nature of the villa's occupants and economy, but are left unexploited. Reports on the pottery occupy 90 pages, one third of the volume. The only use of it for dating seems to be the Arretine as a terminus ante quem for period II, and the African Red Slip and amphorae for the latest occupation. The question whether all this pottery has any other significance, either for San Rocco or a wider context, goes unasked and unanswered amid the catalogue of individual wares.

Sherding of the Francolise hill produced evidence for other neighbouring sites to San Rocco and Posto. One difficulty in discussing

San Rocco's economic aspects is that it is impossible to know the extent of the estate in relation to these other sites. Even with the detailed evidence for oil processing, there is little basis for quantifying the amount actually produced. Moreover, the extent to which the site depended on livestock is unknown, in the absence of any reported animal bone. It must be recognised, however, that since Francolise excavations there has been a huge growth in studies of the Roman landscape and rural economy in Italy, exemplified by the Sette Finestre excavation and Ager Cosanus survey of the late 1970s. It should be seen as a tribute to the work on Francolise published here that it has been a significant inspiration for this later research and the additional questions to which it has led.

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CRONYN, J.M. *The elements of archaeological conservation*; with contributions on marine material by W.S. Robinson. London: Routledge, 1990. xx, 326p; illus. ISBN 0-415-01206-6 (Hbk); ISBN 0-415-01207 (pbk). Hbk: £50.00; pbk: £16.95

This book is the result of nearly half a working lifetime spent teaching archaeological conservation at the University of Durham and, although 'intended in the main for those other than professional conservators who are involved in the understanding and care of excavated materials', it seems more than probable that it will become essential reading for student of conservation. In fact there is evidence that it has already done so for at least one course in the UK.

The book is arranged logically into an introduction and five other chapters on deterioration, general techniques of conservation, siliceous materials, metals and

organic materials. Each chapter covers its topic very thoroughly and is profusely illustrated and referenced. Furthermore the chapters are broken down into sequentially numbered sections, so that it is very easy to find what you want to know.

The book is, however, essentially a reference work, rather than a book to sit down and read. It is too full of basic facts to be readable in the general sense of the word, and it would need many juicy case histories to be able to keep the attention of the reader for long, but these were deliberately omitted. Nevertheless, as a mine of information it succeeds admirably, and no archaeological conservator can afford to be without it.

The real question is whether it is really a book for 'excavators, finds specialists, archaeometrists, museum curators, collectors or administrators', and, on the whole, I am doubtful. They will find it useful from time to time, but I think it is too detailed and too specialised. It reads like a conservation text book, and, as such, it will be welcomed with open arms by a profession which is starved of text books. Indeed the paucity of standard works means that it will also be used by students outside the narrow field of archaeological conservation.

As a textbook I can criticise it only on two significant points: first the poor quality of some of the illustrations, which do not make their point because of lack of contrast in the half tones (3.2b and 3.5d and e for example); and second the price of the hardback edition (now out of print) - if the paperback is economical at £16.95 then it seems to me that £50.00 for the hardback was far too much. Finally, as a scientist, plate 3.18 contravenes all basic laboratory safety rules as the separating funnel should be held securely by a laboratory clamp!

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DAVIDSON, J. L. and HENSHALL, A.S. *The chambered cairns of Orkney*. Edinburgh: Edinburgh University Press, 1989, 198p; 27 pls; 18 figs. ISBN 0-85224-547-5 £35.00

This is the long-awaited first volume of the updating of Audrey Henshall's own *Chambered Tombs of Scotland* Volume 1, covering northern Scotland, published in 1963 and now out of print. It is a pleasure to be able to record that the high standard of the original work is maintained in this valuable replacement. Further volumes will be extremely welcome.

The book is primarily an inventory of sites, with an extensive discussion. Seventy nine tombs are included all told, two of the original sites (a burnt mound and a henge) being omitted from the new study, and 26 sites are added. Of the 79, thirteen are uncertain because of various degrees of destruction.

In their discussion Davidson and Henshall cover the archaeological history, typology, structure, contents and dating of the cairns. They rightly bemoan the lack of excavations of the immediate surroundings of the tombs. They examine the siting of cairns in relations to topography, geology and soil types, but are properly cautious of the representivity of the evidence, given that many tombs on better quality land have been destroyed. The sites are divided into Orkney-Cromarty and Maes Howe type cairns, with the former outnumbering the latter by 5 to 1. The authors retain the division of the Orkney-Cromarty into sites with tripartite, stalled and Bookan style chambers. It is increasingly felt that the Bookan groups is an unconvincing amalgam, while the value of separating tripartite chambers from stalled cairns with four or five stalls is dubious. They go on to discuss the structure of the sites, but do not address the possible reasons for clear the differences between the layout of the Orkney-Cromarty and Maes Howe types and the relationship between this distinction and the spatial arrangements of houses and henges.

A full catalogue of the contents of the tombs, including animal and human bones, is provided, with good clear drawings. The authors are doubtful of the significance of much of this material, a view which reflects their greater interest in the architecture of the sites. In fact others have been able to recover meaningful patterns of spatial distribution of artefacts and burials within tombs. On the other hand they are almost certainly right to doubt that the excarnation of bodies has been demonstrated by the excavations at Isbister. Instead it is far more likely that at least some of the Isbister bones had been brought there from other tombs, which would explain why so many of the Orkney tombs contain few skeletal remains. Their views on the animal bones in the cairns are less developed, for they accept the simplistic notion of totemism and do not consider the possibility of animals occupying tombs after their disuse for burial. In the years while the book has been awaiting publication this has been convincingly shown by John Barber's excavation of the Point of Cott stalled cairn, making the existence of 'The Tomb of the Eagles' highly improbable.

This excellent piece of work brings us up against the essential problem of all studies of Neolithic Orkney: the concentration of energies on the excavation of tombs until the recent past. Investigations of the tombs must continue, of course, but it is very much to be hoped that further resources will be devoted to the excavation of the remarkable settlements of the Islands, enabling the true importance of the tombs to be understood.

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DAVIES, Roy W. *Service in the Roman army*; edited by David Breeze and Valerie A. Maxfield. Edinburgh: Edinburgh University Press with the Publications Board of the University of Durham, 1989. xii, 336p; illus. ISBN 0-85224-495-9 £30.00

The editing of a collection of ten of the most important articles written by the late Roy Davies is much more than an act of *pietas* by two of his former friends and fellow students. The editors point out in the introduction that Davies' grasp of the literary and documentary evidence was such that the papers presented are basic studies of particular aspects of the Roman army and unlikely ever to become completely out of date. It is therefore extremely useful to have these papers in one compass for reference, scattered as were the originals in journals published in different countries and covering several interconnected but distinct disciplines - history, epigraphy, papyrology and archaeology.

From their extensive knowledge of the army the editors have included illustrations which add considerably to the value of the text (although it should be noted that some illustrations were Davies' own, eg those to the tenth paper on the Roman Military Medical Service). It is a pity that occasionally the printing of the photographs does not match their expert choice of subject. In some places they have also brought the text up to date concerning work done after Davies' death, eg a probable military practice post has now been found at Carlisle (p.86 and Pl. 3.7); the statement that cavalry rode and fought without proper saddles (p.123) is corrected in a reference to the work on the Roman saddle by Peter Connolly (p. 269, note 259); the identification of a building in the earliest fort at Corbridge as a hospital has been queried, and the meaning of the Corbridge hoard suggested by Davies is open to doubt (cf. pp.219-220 and note 68 p.294). This serves as a salutary reminder to historians and archaeologists that they should keep abreast of archaeological discovery as far

as possible, as Davies would have been among the first to recognise. It is probable that he would have accepted the analysis of Simon James, who has personally examined the material at Dura, that the shield of wooden rods found there (which is in fact one of several) was not a wickerwork practice shield or *cratis* (p. 86) but a common Eastern type, and may even have been Parthian (personal communication). On the other hand Davies' suggestion that the so-called auxilliary camp one mile west of Lamaesis was in fact the parade ground of legio III Augusta, seems to have won support from Yann Le Bohec, who has made a study of that legion.

Several papers deserve special comment. The second, on the daily life of the Roman soldier (pp.33-68), illustrates Davies' command of the sources. He was able to build an extraordinarily vivid picture of the activities of common soldiers of the empire. This chapter should be required reading for all students of army life, whatever period of history they may be considering. Similarly, any who remain uncertain of the purpose of the cavalry section of the numerous *cohortes equitatae* of the auxiliary army should read the sixth paper with care. Davies shows that without doubt the horsemen were not, as Cheeseman had suggested, mounted infantry but well trained supporting cavalrymen. Once accepted, this changes completely the concept of the deployment of auxiliary troops both in war and in peace time activities. There is still much research to be done in following up Davies' work here, although a most interesting practical study has been made by Ann Hyland in *Equus* (Batsford 1990) which, among other things, supplements and expands both this paper and the seventh on the supply of animals and the remount system.

The last paper printed here concerns the Roman military medical service, a special interest of Davies. Some of his work on military doctors is epigraphic and perhaps wisely

considered too technical for inclusion in this book. However, the provision of a bibliography, covering the 58 papers of his short life of scholarship, gives opportunity for readers who find his approach illuminating to follow it further.

The task of editing papers presented in different formats must have been formidable and a few errors have crept in. A couple of examples will suffice: p.6 Pl. 3.7 rather than Pl. 3.9 is meant, p. 257 note 81 refers to the citing of a passage of Arrian (42.4) in full on p. 107. In fact this is a quote from Hadrian's *adlocutio* at Lambaesis, the passage may be found on pp. 98-9. These slips are minimal set against the bonus of making Davies' work more widely known. A valuable updated bibliography to the papers is also supplied.

A personal complaint of an old-fashioned reviewer (who knows all the arguments for and against) is still that whereas modern publishers prefer endnotes placed in running sequence by chapters at the end of books, the necessity of constantly flicking back and forth, in order to check if additional information has been provided, is tedious and disturbs concentration. It would be kinder to the reader, if notes are necessary (as here they are) if they could be placed at the foot of the page concerned, as was once the norm.

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DAVIS, Leslie B. and REEVES, Brian O. K. (eds.) *Hunters of the recent past: [papers from the World Archaeological Congress held in Southampton, in 1986.]* London: Unwin Hyman, 1989. xx, 415p; illus. (One world archaeology, [15]) ISBN 0-04-445029-x £50.00

WILLIS, Roy (ed.) *Signifying animals: human meaning in the natural world: [papers from the World Archaeological Congress held in Southampton, in 1986.]* London: Unwin Hyman, 1990. xxvi, 258p; figs. (One world archaeology, 16) ISBN 0-04-445014-1 £35.00

These two volumes, numbers 15 and 16 in the One World Archaeology series, are part of the remarkable output achieved by the World Archaeological Congress in 1986 at Southampton. Both deal with aspects of man's relationships with animals in the past and present mainly in non-European contexts. Volume 15 contains nineteen chapters, fourteen mostly on North American native hunting and on European cave art; while volume 16, based much less on concrete things and more on interpretation of non-material ethnographic data, spreads the enquiry into Africa, Australia, Asia and elsewhere. Many of the studies, particularly in volume 16, do not seem to be archaeological in the old-fashioned strict sense of the word but serve perhaps as reminders of the almost unlimited possibilities of interpretation of even the most mundane of archaeological data.

In volume 15 we learn that the North American drive-lanes and fences which were made of natural materials and used to direct the seasonal migratory movements of animals such as caribou, bison, mountain sheep or pronghorn antelope, and which are well attested by eye-witness accounts, could extend for many kilometres, indeed 50-70 km in Newfoundland (p. 291). Usually the drive-lanes took advantage

of the topographical features and terminated in some sort of impasse like a river, where the animals would be easier to capture and kill. All this required much skill and communal effort, not only to reconstruct the cairns and fences for the drive-lanes but also to organise teams of people, women and children perhaps, to gesticulate and shout to shoo the animals in the right direction and hunters to administer the *coups de grace*, sometimes from boats. Of course it was more complex: decoys might be used, rags or pennants might be fixed to sticks on the cairns to flutter in the breeze and imitation wolf-howls might keep up the alarmed caribou's momentum (caribou being adapted to flee the wolf rather than man).

While the herds seasonal movements were regular and predicable and thus lent themselves to the forward planning of their predators, the normal order of hunting in North America was not so much a communally organised mass slaughter of large animals as the tracking and catching of individual beasts, which might well be as small as a rabbit, by low numbers of individual hunters. The seasonal opportunity for a mass cull must have been so much the more attractive to caribou-hunters because, as shown by Ingold's comment quoted by Blehr, "whereas for wolves the tarandus is easy to locate but difficult to kill, the opposite may be the case for humans" (p. 304). Pemican (perhaps as much as three times more nutritious than the preferred fresh meat), the bow, the horse and the gun were all introductions which had influences on the needs and possibilities of peoples depending on a hunting way of life; and corralling of surplus captured animals may have been another development that profited certain communities (e.g. a writer in 1795 noted that a corral 2 km wide kept 300-400 people supplied with fresh meat through the winter (p. 290)). Corraling may have been a late development in North America, but Kehoe suggests that certain Upper Palaeolithic pictorial figures associated with animal depictions in the Lascaux caves may indicate a much earlier usage of a corralling

system. The hunting and butchering of mammoth, guanaco and other animals in the Americas and of moa in New Zealand are also usefully discussed in the light of knowledge of communal and seasonal hunting, as is the information to be gleaned from archaeological butchered bones.

After the relative certainties of the data in volume 15, volume 16 seems a far less comfortable read. Editor Willis sets the tone in his Introduction by claiming a "veritable 'totemic revival'": "Though officially pronounced dead nearly 30 years ago [by Levi-Strauss], totemism obstinately refuses to 'lie down'." (p. 5). Even so it is noticeable that while writers in this volume deal much with various peoples' conceived relationships with natural species, they tend to avoid the term "totemism" - perhaps because it is too inexact. Douglas's argument, for instance, is 'totemic' enough but needs more spelling out: "...the animal categories come up in the same patterns of relations as those of humans because the said humans understand the animal kinds to be acting according to the same principles as they themselves." (p.33).

However, many of the chapters are satisfyingly simple, with Icelandic fish, Nigerian dogs, North American rodeo horses, Arctic polar bears and others all seeming to be very well adapted to their roles in their respective human societies *Umwelten*. Reports of supposed sightings of the long extinct moa by New Zealand frontiersmen may be seen as a function of newly arrived colonists' stress and confusion, and something similar may also be the explanation for Willis's amusing and confusing interaction with a spitting cobra in Tanzania, a fitting anecdote with which to finish the volume.

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DESMOND, Lawrence Gustave and **MESSENGER**, Phyllis Mauch. *A dream of Maya: Augustus and Alice Le Plongeon in Nineteenth-Century Yucatan*. Albuquerque: University of New Mexico Press, 1988. 147p; illus. ISBN 0-8263-1000-1 \$19.95

A deep analysis of the work of the Le Plongeon would be irrelevant, but this volume is a long overdue attempt to place them in the context of their age and goes some way toward rectifying their absence from the pages of other works dealing with the origins and growth of American Archaeology.

This is a light-weight and entertaining book about an archaeological curiosity: the investigations of Augustus and Alice Le Plongeon in the nineteenth century Yucatan. In scientific terms, the Le Plongeon were the epitome of everything that the modern researcher tries to avoid.

The Le Plongeon stretched their data to support some quite fanciful ideas. They tried to establish links between the Maya and the Egyptians, and the Maya and lost tribes and sunken continents. In short, the Le Plongeon belonged to what we now call the lunatic fringe.

Augustus and Alice were controversial figures even in their own time, both for their methods and their ideas. Augustus was a notable antiquarian and traveller as well as a romantic adventurer. He was the Indiana Jones stereotype. Alice, it emerges, was no mere quiescent wife, but quite a personality in her own right. In 1881, she wrote about them setting up housekeeping in the Governor's Palace at Uxmal. "It is the most central building, and from its broad terraces we look upon all the surrounding monuments, which cover an immense extent of ground. Far beyond are the hills, the same that were grazed upon by the people who dwelt here so long ago."

Of special significance for students of the Maya and the period, and the book's outstanding contribution, is the magnificent photographic record accumulated by the Le Plongeon.

Augustus was an excellent photographer and he used his pictures to argue that many of Frederick Catherwood's drawings were often very fanciful interpretations of what the artist saw, but could not understand or relate to.

The book has great charm and is attractively laid out, but it is certainly not a must for the serious scholar of the Maya.

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FAILAKA/DILMUN: *The second millennium settlements. Vol.1:1: The stamp and cylinder seals: plates and catalogue descriptions*, by Poul Kjærsum. Aarhus: Jysk Arkæologisk Selskab, 1983. 171p; 428 illus. (Jutland Archaeological Society publications, XVII: 1) At head of title: Danish Archaeological Investigations on Failaka, Kuwait. ISBN 87-88415-06-6; ISSN 0107-2854

The present volume is the first of two devoted to the glyptic found during the Danish excavations on the island of Failaka, at the head of the Gulf. A total of 427 seals and sealings are published here. A brief introduction describes the basis for the grouping of the seals, followed by two paragraphs on the stratigraphy, and a breakdown of the categories into which the catalogue entries are divided. These include, for each seal, technical information, description of motifs and

location. Each seal is illustrated by excellent enlarged photographs of its sealing surface (generally the base) and of its impression, occasionally, where necessary, with a drawing. The seals are divided into groups according to their shape, which is briefly described (but not illustrated), and design. Group I, seals of Dilmun type, is the largest (290 seals and 2 impressions - Nos 8 and 50); Group II consists of 41 unifacial and miscellaneous seals and one impression (No. 334A); Group III consists of 33 bifacial seals; Group IV is made up of 61 cylinder seals.

Volume 1:2, the text, is, alas, still not out. From the description of the shape of Group I seals on p. 14, it would seem that no differentiation has been made between seals of early or late Gulf type but this may be clarified in Vol 1:2. Trade explains the presence of anomalies such as No. 279 (inscribed in the Indus Valley script), No. 331 (related to the clay seals catalogued by L. al-Gailani Werr in *Iraq* 50 (1988), p. 1 ff.), and No. 335, of possible Central Asian origin. Some of the cylinder seals are imports but others are probably of local origin and are comparable to seals from Susa (al-Gailani Werr, *Proceedings of the Seminar for Arabian Studies* 16 (1986), p. 199 ff.). Gulf seals have been found at various Mesopotamian sites, at Susa in Iran, and at Lothal in India. The cuneiform inscriptions have been published by J.-J. Glassner in J.-F. Sales (ed.), *Failaka, fouilles françaises* 1983, Lyon 1984, p. 31 ff. (for Gulf seals found in recent French excavations on Failaka, see D. Beyer in *Failaka, fouilles françaises* 1984-1985, Lyon 1986, p. 89 ff.). Whereas most of the seals belong to the early centuries of the 2nd millennium BC (one is impressed on a tablet of 1923 BC; B. Buchanan, *Early Near Eastern seals in the Yale Babylonian Collection*, New Haven 1981, No. 1090), some bifacial seals (Nos. 350-52 and 356) seem to be related to Hittite bifacials of the 13th century BC. In accordance with this late date and northern provenance is the presence of about 50 Mitannian and pseudo-Kassite seals. We are

grateful to the author for having made the catalogue available and hope that his second volume will soon appear.

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FRENCH, David. Roman roads and milestones of Asia Minor. Fasc. 2: An interim catalogue of milestones. / Küçük Asya'daki Roma Yolları ve Miltaşları. Fasikül 2: Miltâşi Ara Kataloğu. Oxford: British Archaeological Reports, 1988. 2 vols. (viii, 1-363p.; 364-560p.); 18 maps. (British Institute of Archaeology at Ankara Monograph, 9; BAR International series, 392) Introduction in English and Turkish. ISBN 0-86054-506-7 £40.00

David French began the *Roman Roads and milestones of Asia Minor* (RRMAM) as a parallel project next to the preparation of a corpus of milestones of Asia Minor for *Corpus Inscriptionem Latinarum* (vol. XVII, fasc. 5). Conceived as a series, the first fascicule, covering the Pilgrim's Road, consisted of a detailed discussion of the material, an appendix of milestones and inscriptions, and a series of maps overprinted with relevant information. The discussion began with a full treatment of the literary and archaeological evidence of the Road along with a bibliography of modern observations. French then devolved to an archaeological review of the cities, sites and monuments of each segment of the Road, followed by an identification of these locations with those of the *itineraria*, both confirmed and conjectured. An essential addition were precise definitions for terminology employed in the description of road and road construction, too frequently absent in works of a similar nature. The Appendix gave not only the full text of

milestones and inscriptions of the Road, but findspot, date, bibliography, museum catalogue number and map reference. Tables showed the measured distance from archaeological site to site and the distances according to the *itineraria*. The seven maps depicting the Road chiefly made use of the fine Turkish 1 : 50000 scale series (1977) upon which the author superimposed the findspots of the milestones and inscriptions as well as traced the path of the Pilgrim's Road. The work overall was thorough and detailed, the clear and logical presentation of the material was attributable to the format conceived by the author for the RRMAM series. The opinion and comment was given greater weight by French's personal experience and knowledge of the Road, in particular with regard to his involvement in the location of the route of the *Iuliopolis-Lagania* segment.

In 1988, following an seven year lapse, David French produced an interim volume, fascicule 2 in two parts, in which he published the complete catalogue of milestones intended for the RRMAM series, choosing Dec. 31, 1985 as a cut-off date. As he explains, the new fascicule "is not intended to supplant the inventory of milestones arranged by province but rather to supply a deficiency created by long delays." Although retaining the useful format of RRMAM 1, the purpose of the second fascicule and the sheer quantity of milestones necessitated some abridgement. The sort of discussion which composed roughly a third of fasc. 1 and which made the material accessible to the non-specialist, is omitted in RRMAM 2. Instead, part 1 of the new fascicule consists entirely of the catalogue of nearly a thousand milestones. Unlike its predecessor, full text is replaced with a record of pertinent data for each milestone: Greek/Latin, map reference, findspot, emperor(s), governor, distance and publication. Part 2 of the work consists of an extensive bibliography, a list of epigraphic symbols, and a concordance. The indices which follow contain a number of valuable tables, including the names of modern villages near the findspot and a

concordance of old and new village names. There are also indices referenced to emperor, ancient place names and Roman officials. As with RRMAM 1 the Turkish 1 : 50000 scale map series is used for fasc. 2, pt. 2. There are eighteen mostly fold-out maps with the findspots picked out in red and a listing of them on the facing page. In contrast to the maps of fasc. 1, the courses of the roads are not traced. The decision not to do so was a difficult one, as the author explains, "My knowledge is uneven ... I have concluded, therefore, that it would be prudent to omit all information on roads and thereby not to mislead, particularly in areas of scant knowledge, rather than to set down a patchy body of fact and opinion and thereby to run the predictable risk of substantial revision." Although understandable in a work of this scale, it may be hoped that this omission will be redressed in succeeding fascicules of the series.

Certainly the second fascicule of RRMAM is important as a comprehensive record of milestone in the study of the area. The arrangement of the material used with the indices and concordance will easily allow the reader to locate milestones by datum or by province. The series of maps completely cover Roman Asia Minor, permitting the reader to appreciate the topographical lay of the land. The fine bibliography will also serve as a good starting point for research. As further fascicules are produced, RRMAM 2 will remain as a convenient index to the series.

David French has set the standard for the series with RRMAM 1. The thorough treatment and informed opinion of this fascicule will be expected in subsequent ones. Listed among the concordance of RRMAM 2 are the milestones of the next projected fascicule, RRMAM 3. It is hoped that its publication is not far away.

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FRERE, S. S. and WILKES, J.J. *Strageath: excavations within the Roman fort, 1973-86*. London: published for the Society for the Promotion of Roman Studies by Alan Sutton, 1989. xviii, 276p; 40p of pl; 136 figs; 7 tpls. (Britannia monograph series, no. 9) ISBN 0-907764-11-8 £22.00

This is an exemplary - and rapid - publication of fourteen year's work at an important military base near Crieff in Perthshire. During this period, nearly twenty per cent of the fort's interior was examined with carefully planned trenching by the Scottish Field School of Archaeology and, although not all was done that the writers wanted (due to withdrawal of support by the Scottish Ancient Monuments branch, an absurd decision: p. 33), nevertheless a remarkably coherent series of plans was achieved. There will doubtless be those who argue that it might have been better to have examined one fifth of the fort completely, rather than rely on extrapolation: but the interpretation looks so consistently sound, and the standard of the investigation is so superbly high, as to endorse the approach completely. Only in the central range are there admitted uncertainties, through no fault of the excavators.

Three successive forts were identified, corresponding to the Flavian, Antonine I and Antonine II phases of occupation in Scotland. Interestingly, the Flavian fort is preceded by a granary, and it is suggested (p. 117) that legionaries may have built that and the defences, before auxiliaries took over the site. Moreover, the Flavian fort had some unusual features, not least excessive provision for grain storage, and accommodation best suited to a composite garrison of parts of more than one unit. The authors convincingly interpret the arrangement as a support base for Agricola's campaigns, probably built in AD 83, thus dismissing suggestions that Strageath I may be post Agricola (D Breeze and B. Dobson, *Glasgow Archaeological Journal* 4 (1976), 124-43).

The first Antonine fort is more conventional, best suited to a *cohors quingenaria equitata*; but its successor again housed a composite force, suggesting that military priorities had once more changed. Scholars will doubtless argue about the nature of these units, and the difficulties of identifying garrisons from ground plans and artefacts: but the inferences are excellently documented and make fascinating reading.

What is not discussed in detail is the date of the final evacuation, c. AD 163 being accepted as 'current dating' for the end of Antonine Wall period II. Yet, increasingly, there are seen to be problems with this chronology, brilliantly set out recently by J. C. Mann (*Proceedings of the Society of Antiquaries of Scotland* 118 (1988), 131-7), and well supported by A. C. King's studies of later samian-ware production (in King and Henig (eds), *The Roman West in the third century* (Oxford 1984), 55-78). The work at Strageath does not appear to contribute directly to this debate, but the question of when (and why) Antonine Wall II occupation came to an end in Scotland seems far from settled.

The site yielded a rich and varied range of finds, reported in admirable detail. A fine lead pig, weighing just under 210 Roman pounds, and appropriately stamped, was found, only the third from Scotland. It comes from a Flavian context and, interestingly, the lead appears to have come from County Durham, Alston or southern Scotland, underlining the rapid exploitation of these deposits. It is in fact part of an important hoard, with an iron scythe, four ingots and three iron axes, and it is perhaps a pity that this is not more obviously identified as such, since the objects are scattered over a series of figures (81, 82, 92, 93). There are also two ox-goads (Fig. 85, nos. 143, 144), one of which is identified as a possible pen-nib, following a suggestion of R E Birley; however R P J Jackson, having carried out experiments, is convinced that the traditional explanation should stand (personal communication), and in this he is surely correct.

Strageath, then, is a splendid, traditional-style report which displays, as one would expect, the very highest calibre of scholarship. On a visit to the excavation in 1984, it was with great admiration that one watched the way in which the complex sequences and building plans were being unravelled; now equal admiration may be extended to the resulting report.

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FULFORD, Michael. *The Silchester amphitheatre: excavations of 1979-85.* London: published by the Society for the Promotion of Roman Studies, 1989. xxii, 197p; 80 figs, 40p of plates, 4 plans in pocket. (Britannia monographs series, no. 10) ISBN 0-907764-12-6 £18.00

Silchester is one of the best known Roman period sites in Britain, and Professor Fulford's excavation campaign, one stage of which is reported in this volume, has significantly increased our knowledge of it. The report is produced in an attractive soft cover, and divided into five parts.

The first two parts are an account of the excavation itself, its methods, the finds and other data recovered. They are fully illustrated with detailed drawings including both plans and sections. There are many useful and clear photographs. Importantly, drawn elevations of the standing structure are also included. These records present the excavated database in an

accessible form and will be a crucial source for the study of both Silchester and of Romano-British amphitheatres for some time to come.

This database is then analysed by Nigel Sunter and Fulford, in parts iv and v. Reconstructions and interpretations of the structure are considered. Parts i, iv, and v, and the excellent finds reports of part ii, are well-produced to a high professional standard. My criticisms of these parts are mainly minor quibbles: for example, the arrows indicating context numbers on the drawings cut across the lines showing the boundaries of stratigraphic units.

The most remarkable aspect of the evidence recovered is that which shows that the disused amphitheatre was transformed, in the Anglo-Norman period, into a castle. The reuse of Roman-period buildings as post-Roman fortresses is far better attested in continental Europe, as at Rome, Arles or Trier, than in Britain. This discovery stresses that our minds must remain open to this possibility here too. We lack, at present, any evidence of such reuse in an Anglo-Saxon context, although it has been claimed for unpublished sub-Roman phase at the Cirencester amphitheatre. Nevertheless, all excavators should bear this possibility in mind when examining any, potential defensible, masonry building of the Roman period, including gate structures.

Another unusual feature of the reports is a major component (part iii) on pollen-analysis. Environmental studies associated with major Romano-British sites are rare, so part iii must receive special attention. Regrettably this cannot be favourable in its assessment.

The pollen-data are claimed by A. van Scheepen to enable the reconstruction of a vegetational sequence from the later Pre-Roman Iron-Age to the present. Pollen preservation was 'reasonable', although there is a strong likelihood of differential pollen-preservation from such soil samples. Three series of soil samples were examined: Series A may have been derived from erosion from the seating

bank, and Series C comes from the arena surface. Neither of those contexts can possibly be claimed as 'sealed' and are obviously open to considerable contamination, but this is not taken into account here. Only Series B, from the ground surface sealed beneath the seating-bank, as a 'safe' context which might be sampled critically.

Thus this analysis, by taking little account of the mechanics of soil permeability or mobility, or of the intrinsic problems of redeposition, is of very limited value. Even if the integrity of the Series B sample is accepted then there are still the problems posed by differential pollen-preservation which have already been mentioned. Consequently, one must be very cautious of this evidence and, if it is to be used, it is crucial to remember that such data inform us only of the immediate environs of the site.

Certainly much more environmental evidence is needed from Roman Britain, and pollen-analysis has a, perhaps the, crucial role to play in this. There are, however, problems associated with both the use of unsealed evidence in general, and that of soil-pollen samples in particular.

Consequently, although I recommend this report as a whole, and parts i, ii, iv, and v may be regarded as considerable achievements for their authors, this is a work more important to those interested in Roman-period towns or amphitheatres, or in medieval castles, than to those primarily concerned with the environment of Roman Britain.

Acknowledgement

I would like to thank Miss S. P. Day, M.A., of the Department of Plant Sciences, University of Oxford, for her advice on the palynological aspects of this review.

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GALLIOU, Patrick. *Corpus des amphores découvertes dans l'ouest de la France. Vol. 1: Les amphores tardo-républicaines découvertes dans l'ouest de la France et les importations de vins italiens à la fin de l'Age de Fer*. Brest: Archéologie en Bretagne, 1982. 127p; 23 pls; 55 figs. (Archéologie en Bretagne, supplément 4) ISBN 2-902299-05-2 [Price not given]

SIRAUDEAU, Jean. *Amphores romaines des sites angevins et leur contexte archéologique*. Angers: Siraudeau & Cie., 1988. 238p; 34 figs; 27 tpls; 59 pls. (Corpus des amphores découvertes dans l'ouest de la France, vol. 2) ISBN 2-9503185-0-9 FF 200

In the early 1970's, René Sanquer, the then 'Directeur des Antiquités historiques de Bretagne', instigated a project designed to provide a corpus of amphorae found in the west of France and these two volumes are the first in the series to be completed. Sanquer, in the introduction to the first volume outlines the reasons for undertaking the project and defines the geographical constraint as the area lying between the rivers Seine and Loire. The intended production of inventories covering the whole constraint as well as more detailed departmental studies naturally required the involvement as a team of researchers. Therefore, given the magnitude of the task, it is hardly surprising that it has taken until 1982 and 1988 respectively for the volumes by Galliou and Siraudeau to appear.

Beginning with the first volume by Galliou, the significance of the importation of Dressel 1 amphorae (and hence Italian wine) into Gallia Comata and beyond to Britain during the first century B.C. is discussed in the chapter following Sanquer's introduction. The discoveries themselves are catalogued in the subsequent section; each entry providing details of provenance, the present location of the find, the fabric and where possible the precise form, namely Dressel 1A or 1B. Some 273 vessels

from a total of 77 sites are recorded by Galliou and listed under the department in which they are located. Preceding the drawings and distribution maps at the end of the book, there is a short addendum listing and describing the small number of stamps found on certain of the amphorae.

A wide range of alternative evidence is assessed by Galliou, (including Armorican pottery and coinage, textual sources and wrecks containing cargoes of Dressel 1 amphorae), and combined with his discoveries of amphorae in order to trace the routes used to transport Italian wine from sources in Campania, Latium and Etruria to northern Gaul and Britain. The economic ramifications of this trade in wine is also considered by Galliou who turns to the classical texts for assistance in determining the possible exchange commodities. (We should however note that while wine was undoubtedly the main commodity carried in Dressel 1 amphorae, other items such as olives, shells and nuts are known, [see Peacock and Williams 1986, 87 and 90 for references]). The two principal routes discerned both involve sea transportation from Italy to Provincia. From this area they were either transported via Bordeaux to the Atlantic coast and northwards to Armorica or through central Gaul via the river Rhône then branching to the west and the Atlantic coast along the Saône, Allier and Loire or eastward along the Saône and Doubs to the Rhine. However, Galliou states that a diverse range of unknown itineraries were possible within the parameters of the principal routes and could entail any combination of sea, river and land transportation.

Dressel 1A which account for 47% of the total finds are claimed to have arrived in Armorica between 80 and 50 B.C. while Dressel 1B accounting for 21% (the remainder being indeterminate), are representative of 'Romanisation' and post conquest trade. In assessing trade between Amorica and Britain,

(the main port of entry being Hengistbury Head), Galliou determines that while Dressel 1A amphorae traded along the Atlantic coast could have been shipped direct to Britain, most would have travelled via Alet (St Malo) and the Channel Islands (notably Guernsey which Galliou includes in his catalogue). Furthermore, Galliou remarks that the small number of Dressel 1B found in the area reflects the increasing importance of the trade route via the Rhône and the Rhine. This is evident from the preponderance of these amphorae in south-eastern Britain and eastern Gaul and probably resulted from changes in Rome's allegiance with certain Celtic tribes elsewhere in Gaul and Britain to the detriment of those in Armorica.

Turning now to volume two, Siraudeau concentrates his study on Angers (Ivliomagvs) and its environs in the department of Maine-et-Loire and has to contend with a variety of different forms of amphorae from diverse sources of origin. By way of introduction he establishes the important position which Angers occupied (at the confluence of the Mayenne, Sarthe and Loire), briefly sketches the history of settlement on the site and outlines the method of study adopted in dealing with the material contained in the catalogue. This material is mainly drawn from the large excavations carried out in Angers between 1964 and 1982 but includes older finds deposited in museum collections. The entries include details of forms, fabric, type of sherd where applicable, the presence of stamps. What is particularly welcome is the inclusion by Siraudeau of material associated with the amphorae, thus we find references to fine wares, coins, fibulae etc, which are useful additional aids for dating and assist with the consideration of wider social and economic issues.

Following his exemplary study of the 1300 or so fragments of amphorae listed in the catalogue, section two contains drawings and photographs of the amphorae and stamps. Discussion of the typology, origins and

chronology of the variety of amphorae found is provided in the third section and divided into two parts. The first of these deals with spiked base amphorae: Dressel 1, Brindisian, Dressel 44/Pompeian VIII, Pascual 1, Dressel 2-4, Rhodian, Haltern 70, Dressel 7-11, Dressel 12 and 14, Dressel 20, Richborough 527, Punic, those of indeterminate form and amphorae bungs. In the second part we find all the flat base amphorae: Gauloise 4, Gauloise 5, amphorae from Mougou, Thésée-Pouillé and indeterminate varieties. All the different kinds of amphorae in both parts are treated in turn, assessing dating, sub-groups and fabrics.

In the final section, Siraudeau develops his study by considering issues such as contents, volume and epigraphy. Thus, with the help of information gleaned from the previous chapter on forms he provisionally attempts to quantify the different commodities transported to Angers. His conclusions are displayed graphically at the end of this section in which wine and olive oil are shown to be particularly important, although less so for the latter. The large numbers of Pascual 1, Dressel 2-4, Dressel 20 and Gaulish amphorae reflecting trade in these commodities as well as the main source of supply, namely Spain and Gaul. Siraudeau rightly stresses the tentative nature of his conclusions; for example we have no way of accounting for the use of barrels and how this could affect the statistics based on amphorae alone. It is also difficult to gauge how representative a sample we have at our disposal given that we are dealing with material from a small number of excavations. Nevertheless, it is clear that flat based amphorae represent nearly half of the total number of vessels recovered and indicate the importance of the trade in 'home produced' perishables of Gallic origin. Moreover, the evidence suggests that from the Flavian period, Ivlomagvs enjoyed increasing prosperity and played an important rôle as a redistribution centre both for the hinterland and other major towns in the area.

There can be no doubt as to the value of these books by Galliou and Siraudeau for those engaged in research on issues such as the economy and trade in Gaul both prior to and post conquest. It is to be hoped that the next volumes in the series will appear before too long. For then we shall have an even greater body of comparative data which may enable us to more positively quantify trade in commodities transported in amphorae, assess the rôle they played in both macro and micro economies and develop our understanding of the vectors of trade for the whole of the Roman period.

Reference:

PEACOCK, D.P.S. and WILLIAMS, D.F.
1986. *Amphorae and the Roman economy, an introductory guide*. (Longman Archaeology series.) London and New York.

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GALLIOU, Patrick. *Les tombes romaines d'Armorique: essai de sociologie et d'économie de la mort*. Paris: Éditions de la Maison des Sciences de l'Homme, 1989. 208p; 53 figs; 25 pls. (Documents d'archéologie française, 17) ISBN 2-7351-0292-0 FF 188.

This study derives from the author's doctoral thesis by the distillation of two volumes and 800 pages into a slim volume one quarter the length. It consists of two main sections - the first gives the ideas which have sprouted from the material which is summarized in a gazetteer in the second part. Since it is most unlikely that I could fault the gazetteer, and the series of photographs of gravestones and drawings of pottery, I shall

concentrate on the series of thoughts which range from Iron Age beginnings, to an early medieval afterword.

The subject is perfectly introduced by a survey of burial in Iron Age Armorica. This means that when Galliou gets to the Roman period the local norm has been firmly established before the Roman ideas arrive to muddle things up. In fact there is not one norm, but burial customs are seen to be many, and this state of affairs continues into the Roman period. Without this introduction the Roman diversity could have been badly misinterpreted as a galaxy of Imperial 'influences'. The study of location and organization of Roman cemeteries divides into town and country, and the types of grave and monument are listed.

Then we move into the graves and examine the material and its interpretation. One very interesting point is made (p. 43) with the identification of a jar *à l'éponge* of the later fourth century which contains a cremation. The date of the pottery establishes the continuation of the rite of cremation into the fourth century, but it also brings out the fact that those who were conservative in their way of disposing of the dead - cremation or inhumation - were also conservative in including coins in the grave. Since the coins in the cremation were rarely or never burnt, they were added to the burial after cremation (p. 46), but they were rarely added to inhumations (p. 58). The variation of burial rite is described (p. 50) as specific to small groups, such as families or villages.

There is a touch of suitably macabre humour throughout - even Gallic. Where else would a chapter start with two highly atmospheric verses by Baudelaire analysing how his beloved will be when *sous l'herbe*, only to highlight the difference between cremation and inhumation, a few pages later, as a dualism between cooked and raw. Again, he asks whether the concentration on closed forms of containers in the grave means any more than a constant thirst in the after-life? Lead coffins, shafts or wells -

almost certainly ritual -, customs, beliefs, and demography, they are all there and deserve further discussion.

The bibliography is very useful indeed, and there is a good index. If only we had more such regional studies, as Galliou himself says, the whole thing would make far better sense. In the meantime, Brittany leads the way.

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GATHERCOLE, P & LOWENTHAL, D. (eds.) *The politics of the past: [papers from the World Archaeological Congress held in Southampton, in 1986.]* London: Unwin Hyman, 1989 [c. 1990]. xxvi, 319; illus. (One world archaeology, 12) ISBN 0-04-445018-4 £38.00

STONE, Peter [and] MacKENZIE, Robert. *The excluded past: archaeology in education: [papers from the World Archaeological Congress held in Southampton, in 1986.]* London: Unwin Hyman, 1990. xxxiii, 314p; illus. (One world archaeology, 17) ISBN 0-040445019-2 £38.00

"Culture is ... change" (*Excluded Past*). The world grows larger yet more compact. Fresh affiliations and identities develop. Through our own awareness both cause and effect, possibilities multiply. It is no paradox that modern archaeology changes too - "the past ... is created ... in the present" (*The politics of the past*); but if, as these two books assert, archaeology grew from the Western tradition then, as the West appears to relinquish its dominance, the change will be uncomfortable as well as exhilarating. Consider the grounds of validity and authority for archaeologists and historians. "Archaeology embodies ... evidence ... and interpretations" observes Peter

Gathercole (*The politics of the past*). The assumption in these books is that we should assess validity on the merits of interpretation and the presuppositions that feed it; and we learn that - having deemed irrelevant *a priori* much archaeology and other evidence for the history of many social groups - received accounts of the past are invalid. The concept of exclusion is the key to both these volumes arising from the World Archaeological Congress - and perhaps to the well known argument which made that conference so important. Ranging far beyond archaeology in reporting discoveries not so much about the past as about our context in today's world, both volumes treat of archaeological and historiographical 'objectivity', most of *Excluded past*'s 26 papers in connection with teaching (or lack of it) in schools and other institutions; most of *The politics of the past*'s 25 in connection with presenting the past to people in general. Their respective contents overlap, both pointing to ideological and political implications in all representations of the past. With examples from most of the world (not China, barely India or Islam), we find various arguments about 'the excluded past' and an array of recent projects designed to represent the past more fairly. These books offer thoughtful hours for archaeologists, historians and sociologists alike.

Three sources of bias are identified in historical and archaeological research and presentation. First, scholars have tended to favour the evidence of texts over other sources (e.g., *Excluded past* chap. 14); and even as a broader view becomes accepted, archaeology is sometimes related in favour of training for 'useful' skills (e.g., *Excluded past* chap. 21). Second, promotion of fresh interpretations is hindered because the media thrive on accepted images. So it is difficult for archaeologists to use the mass media (e.g., *The politics of the past* chap. 14) or to publish innovative text books (*Excluded past*, passim). Thirdly - nourished partly on wide-spread images or stereotypes - imperialist, nationalist, ethnic, sectarian, racist and sexist interests encourage certain interpretations of 'the' past and suppress others.

This third source of bias is the most basic. Separation or classification, then selection, are correctly identified as the first steps for exclusion. For example, the Smithsonian Museums present Whites as 'Man', all others as part of natural history (*The politics of the past*). Again, some South American histories commence with the European invasion (*Excluded past*). Or else exclusion is effected by subsuming contradictory evidence in a general image (*Excluded past*). Rid, then, of such evidence, the rest of the story is developed so as to inculcate partisan values. However, this analysis does not, in itself, entail a criticism of 'bad' ideology. For a similar procedure is followed for "redressing the balance" (*The politics of the past*) with 'good representations, or for "political organization of ... imagination and affective culture ... to raise ... consciousness and ... well being" (*Excluded past*). Although several papers in both volumes touch on basic aspects of ideology in history, only one is comprehensive (*Excluded past* chap. 13). From a Western point of view, the difficulties are partly political. For instance, while local museums may integrate communities, they may serve too to fragment nations. Or national museums may discourage regional variation. (*The politics of the past* chaps. 13-16). Similar conflicts beset education, where archaeology and anthropology can speak in history's silences (*Excluded past* passim). The difficulties are cultural too. First, while Westerners tend to distinguish past from present and future, many others do not (*Excluded past* pp. 41, 90; cp. *The politics of the past* chap. 17). Second, complicated divergences of interpretation throw up the question of authority (eg *The politics of the past* chap. 10, *Excluded past* p. 197): who is to know what, and whose view counts? Third, the context of research about - and presentations of - the past varies. While most peoples regard the broader past as a field of expert knowledge, there are various criteria for recognising history teachers and the places appropriate for showing historical treasures - criteria which 'archaeologists', 'teachers' and museums do not necessarily

satisfy (eg *Excluded past* chap. 8; and in *The politics of the past* cp. chap. 7 with chap. 18). There is no single past; the basic issue is not scientific objectivity or subjectivity but the respective moral implications of one interpretation and another; and on the collected evidence of these volumes, there are no substantive grounds for distinguishing fair versions of history from unfair in more than one culture at a time. 'One World Archaeology' is a nice idea for some - for most; but others can still argue for their private heritage.

For all the variety of manner and content, most of the papers fall into one or other of six categories: a dozen (mostly in *Excluded past*) analyse historical and recent changes in interpretation, education and training, and lay literature; sixteen (mostly in *The politics of the past*) discuss interpretation in exhibitions and displays; ten discuss school projects (*Excluded past*); and four consider management of archaeological sites (but there is only a single passing reference to archaeologists' and historians' involvement in suits over native claims to land). The main source of the liveliness in these volumes is the contributors' experiences of so many ingenious and hard working schemes for 'linking' the cultural, economic and epistemic frames which sunder our world. We read of eight museum projects, three field projects, and a dozen teaching projects. Some were designed to encourage awareness of particular communities, others to promote national identity (eg *The politics of the past* chap. 13), one to promote universal understanding of cultural differences (*Excluded past* chap. 1). Most are described and assessed in practical terms. We learn, for example, of political, administrative and financial problems in developing a small museum in Botswana (*The politics of the past* chaps. 15-16), and of some of the technical problems in reconstructing Jorvik (*The politics of the past* chap. 20). There are happy and inspiring accounts of children involved in archaeological and ethnographic field work (*Excluded past*) and of exercises that managed to break down historiographic stereotypes (e.g.,

Excluded past chap. 15). Projects reaching for larger groups are prone to trivialisation in the mass media (e.g., *Excluded past* chap. 3) and to the flux of official policies (e.g. *Excluded past* chap. 5); but it depends on the context, and also we learn of courses (*Excluded past*) and exhibitions (*The politics of the past* chaps. 7-8) which succeeded in cultivating public appreciation of archaeological and historical resources. Grimly, we learn too how these resources can be abused. Himmler's SS were keen diggers, it appears (*Excluded past*). In one shocking paper (*Excluded past* chap. 11), we read that colonialist denial of indigenous ways of life persists in America (cp. *The politics of the past* on Poland, 1939-45).

Does the past matter? The most convincing papers are those describing how small groups of participants tackled study, exploration or conservation. Nowhere, however, is a firm articulation made between the scope of particular projects and the scale of general social and cultural problems - "People ... face so many difficulties that they have little scope left for attending to ... monuments" (*The politics of the past*). Several contributors insist, nevertheless, that it is especially now, as the world changes so much, that we need history and archaeology - for perspective. Hence "the ... archaeologist's aim is knowledge of the past for its operational value in the present (*The politics of the past*). Dr Gathercole suggests (loc. cit) that "dialogue" between evidence and interpretation can keep archaeology alive. As cultures are entitled to their own resources and beliefs, we could have some really new archaeologies! Even if such alternatives are not feasible or legitimate - even if there are certain irreducible principles in archaeology and historiography - these volumes show that it behoves us at least to imagine other archaeologists.

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GEBEL, Hans Georg. *Das akeramisches Neolithikum Vorderasiens: Subsistenzformen und Siedlungsweisen.* Weisbaden: L. Reichert, 1984. 133p. (Beihefte zum Tübinger Atlas des Vorderen Orients, Reihe B, no. 52) ISBN 3-88226-229-x DM 113

This book, which somehow slipped through the net for review when it was published, would probably win the prize in any competition for the book with no text. After less than three pages of preface, it plunges into its standard tabular format. The book is an information resource of the first order for anyone concerned in any way with the early neolithic in the Near East, in effect from the latter half of the epipalaeolithic before 8000 BC to about 6000 BC. It is also bilingual for the benefit of the monoglot English speaker.

Each table consists of a few pages of introduction to the characteristics and the symbols used, followed by the table itself, which typically runs across thirty pages. Each table embodies sixty or more related characteristics in the vertical columns, while the horizontal rows represent the individual sites, or major period phases of multi-period sites. The first table covers general information about and the status of the site, the degree of excavation, the range of techniques applied and the publication status of the work. The following tables deal with (a) structures and more than 70 architectural characteristics, (b) settlement forms, technological information and economic characteristics (more than 60 characteristics overall), (c) environmental conditions (more than 50 characteristics), and (d) the biological aspects of the economy (detailed through more than 90 characteristics). There are more than 60 pages of footnotes to the tables, followed by 50 pages of site-by-site bibliography, 12 distribution maps and 7 pages of chronological tables.

It all adds up to an extraordinarily useful information resource, meticulously composed, handsomely produced, and selflessly free from

any editorial input. For all that Gebel has recorded, I am surprised that he did not include a characteristic on the detaching of skulls, which is a fairly common observation in certain parts of the Near East for the period in question. The one characteristic which Gebel does not pretend to tabulate is the relative importance of the excavated sites. And of course there is no qualitative assessment of the fieldwork or on the reliability of the published results. Thus the book is much more useful (indeed, indispensable) to the student of Near Eastern prehistory than it is to the first year student or the casual enquirer whose main focus of interest is elsewhere. If you need to find out which settlements in Jordan were cultivating cereals before 7300 BC, who killed predatory birds or practised trepanning, the frequency of seawater mollusc shells on inland sites, or anything else recorded before October 1983, this is the book.

Will anyone take up the challenge to produce a dicennial up-date in time for 1994? Surely no-one can expect Gebel to expend so much time and effort again. There is already so much new information, especially from Jordan, S.E. Turkey and N. Iraq, that the database is in danger of losing its significance. And should we not be thinking of the second edition, rather than being just a book, being produced on an electronic medium? The potential for cross-referencing across these huge tables without having to leaf backwards and forwards with a notebook to hand is a mouth-watering prospect.

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GROVE, David C. (ed.) *Ancient Chalcatzingo*. Austin: University of Texas Press, 1987. viii, 571p; [Texas Pan American series] ISBN 0-292-70372-4 \$75.00

Ancient Chalcatzingo is the culmination of more than a decade of archaeological investigation, headed by David Grove, into a unique Mesoamerican Formative period site.

The Chalcatzingo cooperative project began in 1972. Rather than a cultural historical reconstruction, the goals of the project were aimed at a synchronic view of this Formative period site and its local, regional, and extraregional interactions. The foundations of this approach were laid by the multidisciplinary work established by MacNeish's Tehuacan Valley Project, Flannery's Oaxaca Project, and Alemena's work in Tlaxcala and Puebla.

On the basis that the validity of all previous data on the site was questionable, Grove and co. tackled the project, as it were, from scratch. The resultant work is an amazingly detailed and scientific investigation which is the most complete yet published on a Formative period site in Mesoamerica.

The individual chapters of the book are largely descriptive and data-oriented; the intent being to present and discuss basic data and offer some interpretations. The presentation of the material has been done in such a way as to permit others to follow with different forms of analysis of their own.

The book has seven topical sections: the site and its geographical-ecological setting; construction of chronological sequences; discussion of the site's art, presentation and discussion of the artifacts; the site's regional ties; discussion of Classic and Post-Classic remains, and a concluding discussion on various aspects of the data presented and proposed models to "explain" Chalcatzingo.

Some of Grove's conclusions are particularly interesting. For instance, that it cannot be hypothesized that the rise of Chalcatzingo is related to agricultural productivity and surpluses as in the case of early centre such as San Lorenzo.

Chalcatzingo may have been unique or special in the Early Formative, indeed the site may already have had considerable significance by about 1000BC. The terracing at the site may have had symbolic as well as practical value, but this remains a matter for speculation. Land appears to have been passed on in a hereditary manner. Agricultural support may have been received in the form of tribute or via exchange and animal protein may also have been imported.

The Rio Amatzimac Valley was clearly the local interaction sphere for Chalcatzingo, and this is born out by the fact that the area is differentiated archaeologically from the surrounding areas. Chalcatzingo seems to have enjoyed the prominent position in the valley and public architecture at other sites may mark them as secondary centres, perhaps, formed through alliances with Chalcatzingo's elite.

The idea of the cult of the ruler, possibly an important theme in Olmec iconography, has yet to be identified at Chalcatzingo.

The position of Chalcatzingo at "the entrance to the underworld" may not be entirely fortuitous as the sanctification of caves and rock-shelters is a fairly recurrent theme in various Mesoamerican cultures. However, the site was also conveniently situated at a point where several cultural spheres converged. By the Middle Formative period, Chalcatzingo can be classified as culturally central Mexican. This reviewer's own view, as yet unaltered and still supported by much in Grove's presentation, is that regardless of Chalcatzingo's interaction with other communities, it remained throughout much of its existence culturally indebted to the Gulf Coast Olmec.

Grove favours an economic model for Chalcatzingo and that its location was favourable to the exploitation of routes of communication but emphasizes that the symbolism of the acts of trade and exchange may have been as important to the participants as the items they dealt with.

Grove's early papers and the Thames and Hudson book on the subject stimulated this reviewer's interest in the site. Space prohibits the elaboration of his particular enthusiasms but

he is certain that the serious student of Mesoamerican archaeology will find the present publication an invaluable source book and it should occupy the researcher's shelf along with Flannery's *Early Mesoamerican Village* and MacNeish's volumes on the Tehaucan Valley.

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GULAINÉ, Jean [et al] (eds.) *Ornaisons-Médor: archéologie et écologie d'un site de l'Âge du Cuivre, de l'Âge du Bronze final et de l'antiquité tardive*. Toulouse: Centre d'Anthropologie des Sociétés Rurales; Carcassonne: Archéologie en Terre d'Aude, 1989. 314p; figs; tpls; plans. ISBN 2-9054237-0-1 [Price not given]

In discussing the publication of archaeological excavations, Phillip Barker argues that, in an ideal world, all the evidence should be published in the manner of Pitt-Rivers, adding that this is rarely achieved in practice. Here, however, is an excavation report of which the General might justifiably have been jealous: a lavishly illustrated volume comprising 42 individual contributions.

On first appearances, the site does not even seem to be a particularly spectacular one, consisting of a Chalcolithic ditch, two Late Bronze Age pits and three Late Roman pits. How many comparable sites are known only from 5 - 10 page articles, often in obscure regional journals? Does the site of Médor justify such an expensive publication? For this reviewer, any doubts were dispelled on reading the volume. The book is divided into four sections, of which the first three in turn deal with the main phases of occupation on the site. Descriptions of the archaeological features and

artefacts are followed by detailed discussions of soil morphology, palynology, plant macrofossils and mammalian and molluscan fauna. In the final section, these diverse data are brought together in a synthesis by Guilaine, looking at the evidence for human influence in long term processes of environmental change.

The particular importance of this site lies firstly in the diverse environmental data, covering three separate periods and permitting for the first time in the Languedoc region of Southern France, the identification of a sequence of environmental change, and secondly in the quantity of decorated and undecorated pottery recovered from the Chalcolithic ditch making this one of the most important ceramic assemblages for the Chalcolithic of the western Midi.

From the beginning, this project was planned as a multi-disciplinary study, integrating archaeological and palaeoenvironmental research. This degree of integration is not uncommon in Palaeolithic research, but is rarely seen in studies of later prehistoric sites. The project was undertaken as a joint venture by the Centre Nationale de Recherches Scientifiques and the École des Hautes Etudes en Sciences Sociales, two large research organisations funded by central government. The existence of such bodies is an important feature of the structure of French archaeology, which permits research such as this to take place: a project like this could never be done "on the cheap".

The recovery of so much information from one ditch and five pits is, at the same time, encouraging and disturbing: encouraging, of course, because it is a triumph of archaeological fieldwork; but disturbing also because one cannot help thinking of the information that may be lost when comparable sites are dug on a shoe-string budget and published as brief articles.

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HAMPE, Roland and **SIMON** Erika. *The birth of Greek art from the Mycenaean to the Archaic period*. London: Thames and Hudson, 1981. 316p; 469 pls; map. ISBN 0-500-23342-x £35.00

This work brings together a variety of topics covering a 1000 year period, within the broad headings of architecture and painting, metalwork, weapons, stone vessels, pottery, engraving, jewellery and ornament, ivory, bone and wood, as well as sculpture.

As the title indicates, the authors, two eminent classical archaeologists, believe in the continuity of art, culture and religious belief between Mycenaean and Greek times. They provide an enjoyable and stimulating, even if controversial, account of well-known prehistoric and Greek works of art accompanied by superb illustrations. There are also some clever and interesting identifications of Greek deities in prehistoric material.

The book would have been more useful to the scholar if footnotes had been included; nevertheless, an extensive bibliography, laid out according to topics discussed and the items illustrated, assists the reader's need for further information.

Most of the evidence included in the book comes from the Greek mainland and some Aegean islands; it has been reviewed by Livia Morgan in *Journal of Hellenic Studies* 1985, pp. 264-265. What is worth noting here is that the Cretan material is less well represented. There are however brief discussion of the Hagia Triadha sarcophagus (p. 37), some Cretan shrines (p. 50), the town and figurines of Karphi (pp. 55, 56, 235), the Vapheio cups (pp. 97, 98), a Minoan helmet, palace style pottery and Greek jewellery from the area of Knossos (pp. 117, 133, 211), a plate from Praisos (p. 66), Idean cave "shields" (p. 113), cut-out bronze sheets from Kato Syme Viannou (pp. 113, 114), bronze armour and vases from Arkadhes (pp. 127, 171, 279) and sculpture from Prinias (p. 278), Gortys (p. 277), and Dreros (p. 255). The book might

with benefit have included more Cretan material, because there is considerable evidence from Crete which supports the authors' thesis on the continuity of Greek art.

This is a useful volume both for archaeological and general libraries. It is also a handsome coffee table book for art lovers.

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HARBISON, Peter. *Pre-Christian Ireland: from the first settlers to the early Celts*. London: Thames and Hudson, 1988. 208p; 173 illus. (Ancient peoples and places, 104) ISBN 0-500-02110-4 £14.95

HERITY, Michael and **EOGAN**, George. *Ireland in prehistory*. Revised reprint. London: Routledge, 1989. xvi, 302p; 16p of pls, 99 figs. ISBN 0-415-04889-3 £10.95

The volume by Herity and Eogan is a paperback edition of the original first work published in 1977, and in a corrected edition in 1978. The work by Peter Harbison is an original publication in 1988 for the "Ancient Peoples and Places" series, and is directed to a general audience.

It would be helpful to consider the Herity/Eogan book first. Being written by two professors from University College Dublin, the one specialising in the Neolithic period and the other in the Bronze Age, it is much more of a textbook for the student desiring a good framework for the study of Irish prehistory.

The book reflects individual interests. The chapters on the Mesolithic and Neolithic being written by Herity and the period from the Bronze

Age to the Celts being dealt with by Eogan. This has given a more specialised approach throughout the book than we sometimes find in a work of this nature. The section on the court-cairn burial places, and their associated artefacts is lucidly written and well illustrated. The axe industry at Tievebullagh is discussed fully with other flint artefacts of the Neolithic. The Neolithic houses found in Ireland which are absent in lowland Britain, contribute much to the prehistory of Southern Britain and the later chapter on industrial change removes any hint of insularity from the book.

The detailed discussion on the Passage Grave builders and the later Neolithic single burials is accompanied by good illustrations. All of this is seen as a sign of a Central European contact whose customs and pottery styles are now appearing in Ireland.

The Beaker people, the Food Vessel people, the Urn people, and the associated development of bronze metalworking are well dealt with, especially in the detailed description of the metal working practices. The section on the Late Bronze Age pictures the very fine gold work of the period, and discusses other interesting aspects such as bronze horns, intriguing musical instruments or votive objects, external trade, and the weaving and woodworking crafts.

The book concludes with a somewhat shorter section reflecting the paucity of material from the Iron Age. The 'hill forts' and 'Royal sites' are interesting reading, but unfortunately the dating of both univallate and multivallate hill forts is so uncertain as to allow only educated guesses as to the origin of this type of new settlement.

The other volume, by Peter Harbison, includes by reason of its more recent date, some important sites such as Mount Sandell and Lough Boora, not covered in detail in the earlier work. These important Mesolithic sites are well illustrated and clearly discussed.

The burial forms of the Neolithic are discussed in original fashion with some questions posed on dating. There is an excellent description of the Boyne Valley tombs supported by good plates and illustrations.

The Irish Beakers found on settlement sites, unlike Central Europe and Britain where they accompany burials, raise other points of interest. The Early Bronze Age, with its native deposits of copper, generates a query as to whether the Beaker People introduced metallurgy into Ireland or not, a question which remains unanswered awaiting more definite dating of contexts. The experiments in matching axe-matrices to stone moulds by Laurence Flanagan, reveals distances between matching axes and moulds which can only mean extensive trading from the point of manufacture.

The final sections on the Late Bronze Age and the Celtic Iron Age rely heavily on what is available, namely metal artefacts, some of astonishing beauty, and this leads to a review of the arguments on the arrival of the Celts in Ireland. The questions of the ability of a few craftsmen to introduce La Tène art style, and the necessity for a much larger influx to introduce the Indo-European Celtic language, remain unanswered. Finally a few Roman artefacts discovered in Ireland provide a final titillation to the speculative mind.

This is a volume which the student will find adds to the Herity and Eogan work, and a very comprehensive survey, easy to read, for the general public.

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HELMS, Svend. *Early Islamic architecture of the desert: a Bedouin station in eastern Jordan*; with contributions by A.V.G. Betts, W. & F. Lancaster and C.J. Lenzen. Edinburgh: Edinburgh University Press, 1990. xi, 188p; 8pls, 89 figs. ISBN 0-85224-627-7 £25.00

In less than 200 pages, Svend Helms presents an entirely new view of early Islamic desert settlement which will challenge many of the traditional assumptions. By concentrating his research on the fairly unglamorous site at ar-Risha, Helms is able to place the more well-known 'desert castles' in perspective as expressions of Bedouin diplomacy rather than as impositions of central government.

The book has six main sections, each of which is self-contained, enabling it to be read in any order. The first section, the *Prolegomenon*, is an essay on the concepts involved in desert architecture and its meaning in the early Islamic period. The second section is a discussion of the site of Qasr Burqu' and its relationship to ar-Risha. The remaining four sections concern the site of ar-Risha with each section written by a different specialist. William and Felicity Lancaster write about modern ar-Risha and the idea of 'permanent address' which Helms uses as a concept for understanding ancient ar-Risha. Helms deals with the site of ancient ar-Risha as revealed by survey, low level aerial photography and excavation. Two subsequent sections by C.J. Lenzen and A. V. G. Betts deal with the pottery and stone implements respectively.

The main thesis of their work is that many early Islamic structures in the area of Eastern Jordan and Syria may be understood as products of an 'architecture of diplomacy.' The basis for this idea is the concept of a permanent address whereby a nomadic sheikh may remain in contact with central government (pp. 37-49 and 67-70). With this in mind, Helms identifies a number of sites both inside and outside the *badiya* (desert/

steppe) as products of an architecture of diplomacy. Whilst this theory is untestable, it does have the advantage that it explains sites in a nomadic context rather than from an urban point of view (p 13). One of the interesting results of this perspective is that Helms refuses to describe the Syrian Desert as desert, instead referring to it as 'steppe.' Strange as this may seem, it does enable one to think about the area as one through which travel is possible rather than as an impenetrable barrier.

Perhaps the most awkward part of the book is its illustrations. Although each figure and plate is numbered and there is a list of captions at the front, there are no captions accompanying either the plates or the figures, which makes it difficult to compare the text with the illustrations. A related problem is the absence of scales in some of the photographs (eg plate 7).

Whilst not everyone will agree with this book, it should at least make people think. Its great advantage is that it deals with a type of site which is probably quite numerous but which is rarely considered by students of Islamic architecture. In addition this work provides a useful summary and bibliography of sites in the area from the prehistoric period until the present day.

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HERZFELD, Ernst E. *Iran in the Ancient East: archaeological studies presented in the Lowell lectures at Boston* New York: Hacker Art Books, 1988. xii, 363p; 131p of pls; 421 figs. First published New York: Oxford University Press, 1941. ISBN 0-87817-308-0 \$120.00

As the title suggests, this substantial volume - reprinted in 1988 - is based on a series of eight lectures given in Boston in October - November 1936 by Ernst Herzfeld. Herzfeld was originally an architect by training but is best known for his pioneering archaeological achievements and stimulating, although often unorthodox, views on the art history, historical geography and philology of the Near East. Insights into his life, work, and thoughts can be glimpsed through reading Morey's (1952) *Memoriam* of Herzfeld, and his own posthumously published collection of studies on historical geography (Herzfeld, 1968).

Herzfeld later re-wrote his Lowell lectures to form the present book, which was first published in 1941. This was arranged in four chapters, or strictly speaking essays, covering 'The prehistoric period' (sixth to second millennia), 'The dawn of history' (third millennium to the Achaemenid period), 'The Achaemenian period' (ca. 550 - 331 B.C.), and 'The Arsacidan and Sasanian periods' (ca. 238 B.C. - 651 A.D.). The choice and contents of these reflect the author's own interests and direct involvement through visits to and/or excavations at Tepe Hissar, Paikuli, Pasargadae, Persepolis, and Samarra. Together they serve to demonstrate Herzfeld's belief that Iran was the centre of ancient civilisation, the inspiration for later Mesopotamian developments, a cultural link between the Far East, the Indian sub-continent and Europe, and a potential key to gaining "new dating evidence for European prehistory".

More specifically, the first chapter of *Iran in the Ancient East* deals mainly with interpreting decorative motifs on - and parallels for - regional

types of painted ceramics from Iran. Metal vessels, weapons and other objects, and the role of animals and man in art are also discussed. The second chapter largely deals with the possible ethnic affiliations and origins of historically attested Iranian tribes; the principal features of Akkadian and Elamite rock carvings, and Median and Achaemenid tombs and architecture. The characteristic features of Achaemenid art and architecture, including the relations with Aeolian and Ionic capitals, are discussed in greater detail in the following chapter. Herzfeld closes with the "destructive" effects of Hellenistic art and design on Iran, with particular reference to architectural forms and elements, wall-paintings, rock reliefs and coins. Problems of the definition of 'Sasanian art' are also treated, and the relationship between rock reliefs and painted murals emphasised. The text concludes with a series of footnotes (which are one of the more useful aspects of the book) and indices.

Each chapter is illustrated with abundant sketch drawings of objects (many of which were in his own private - but subsequently dispersed - collection) and architectural elements. However the accompanying photographic plates (particularly of the Sasanian rock reliefs) are disappointing in terms of reproduction quality compared to the original edition. Furthermore, Plates IV, VII, X, XII, and CI - CIV (of painted ceramics and wall-paintings) were originally printed in colour but have been inappropriately reprinted in black and white, presumably for reasons of cost.

The first two chapters were originally revised by Herzfeld for the first edition *Iran in the Ancient East*, in view of the rapid archaeological developments which had occurred within Iran since the early 1930s. Foreign archaeological expeditions - and illicit commercial excavators - had been quick to exploit the new situation and a virtual archaeological *terra incognita* was revealed. Inspired by the discoveries of new prehistoric cultures, "Luristan bronzes", Sasanian and Umayyad decorative stucco, and

Islamic glazed ceramics, archaeology resumed in Iran soon after the end of the Second World War. This culminated in the multi-disciplinary surveys and excavations of the 1960s and 1970s (the scope of which can be glimpsed from consulting Hole, ed., 1987). Regrettably, since 1979, virtually all archaeological fieldwork has ceased within Iran apart from that carried out under difficult circumstances by a depleted local Antiquities Service.

However, revisions continue to be made to the overall chronological framework of ancient Iran in the light of more reliable stratigraphic sequences and absolute dates, and 'final reports' on inter-war and post-Second World War archaeological fieldwork continue to trickle from the publishers' presses. As a result, many of Herzfeld's comments and conclusions are becoming increasingly outdated or disproven for the earlier archaeological periods. The context of Iran within the ancient Near East has also been substantially revised in view of subsequent fieldwork in eastern Turkey, the Soviet Union and Central Asia (Ligabue & Salvatori, eds., 1989), Mesopotamia (Curtis, ed., 1982), and the Gulf (Potts, see review in Bulletin 26). For instance, few Near Eastern archaeologists would now subscribe to the view that similarities in types of stylised neolithic figurines from Crete and Iran indicated imports from one regions to the other. Or that common symbols on painted ceramics linked cultures in Iran and China, or were related to the subsequent development of writing!

Changing interpretation, however, is a sign of a healthy evolving discipline. It is sufficient to warn new readers of *Iran in the Ancient East* that the book represents a 'state of the art' viewpoint of a brilliant albeit controversial polymath, as expressed at the end of the flurry of inter-war archaeology in Iran but prior to another five decades of discovery and re-interpretation. Ideally an updated sequel volume is required instead of a costly reprint. A critical introduction should have been a minimum requirement. In the meantime interested persons are

recommended also to read the attractively produced new British Museum introduction to the subject, as a means of pursuing a more balanced and up-to-date assessment (Curtis, 1989) and then go to Frye's (1984) historical survey of Iran plus the earlier chapters of *The Cambridge History of Iran*.

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HODDER, Ian (ed.) *The meanings of things: material culture and symbolic expression: [papers from the World Archaeological Congress held in Southampton, in 1986]*. London: Unwin Hyman, 1989. xxvii, 265p; illus. (One world archaeology, 6) ISBN 0-04-44017-6 £30.00

Problem: Using any method except the chi-square test, you are requested to identify the post-structural principles which generated the following numerical array, bearing in mind the following axioms: (1) a statistician is someone who knows that what s/he means is at variance with the truth, (2) a hypothesis test is a means of deciding to believe absolutely that of which you are not sure, and (3) multivariate analysis is a means of finding out the answer when you don't know the question. A commentary on the problem can be located in the closing quotation.

18	25	13	6	24
9	2	1	22	3
5	11	8	21	17
7	15	12	14	4
16	23	19	10	20

The opportunity for post-processual archaeologists to display their wares and offer their ideas for consumption on the world stage at Southampton in 1986 was not to be missed. Ian Hodder, who did so much to support the World Archaeological Congress Secretary Peter Ucko, was encouraged to organise a symposium on the "Meaning of Things" and turn the subsequent papers into a coherent, well-organised volume. As we shall see, he did this and much more.

The keywords of this volume are power, structure, agency, symbolism and style. Twenty-five papers written by authors from 14 different countries provided the breadth and cultural diversity that has come to be associated with the One World Archaeology Series. The formal division of the volume into three sections is

irrelevant because of the extent of overlap between the themes of "Symbolic expression in the social context", "Structures of meanings" and "Meaning, power and agency". The impression conveyed by the volume is that symbolic anthropologists and archaeologists are at last dealing with some of the real-life complexities of the field, through mutual interaction rather than the ideological posturing often associated with post-processual archaeologists.

Llamazares and Davis come cleanest with the major theoretical problem of symbolic archaeology: she - "we only have the signifier: that will be our empirical base" (p. 242); he - "it has been the work of all archaeologies ... to peer into black boxes ..." (p. 207). In a real sense, most essays in this volume are extended epistemological comment on this Janus-like viewpoint. Kleppe is in the minority in his advocacy of inductive reasoning as the only way to explore the relationships between socio-cultural features and material culture, although most writers stress the importance of the unique historical and cultural context of symbolic meanings. Both Weissner and Kobylinski tackle the problems of universal cultural processes and uniformitarianism. While the latter is ultimately uncertain of whether or not ethno-archaeological analogy requires a uniformitarian base, Weissner shows a surer touch, realising that universal human cognitive principles are inadequate for developing one-to-one correlations but are helpful in setting behavioural limits and guideline for local investigations. She uses the example of the development of social identities by comparison in a review of her studies of material culture style.

The most extended epistemological enquiry is written by Melas, who uses the familiar Collingwood strategy of "empathetic understanding" to develop his approach of pragmatically-ordered pluralism. The key metaphor here is that of "translation": the explanation of culture A in the language of culture B. If, *pace* Newton-Smith (p. 142), the

truth of relativism entails the impossibility of translation, the processual archaeologists problem of equifinality becomes, for post-processual archaeologists, availability of alternative translation manuals. Melas stresses that our emic and etic viewpoints are BOTH alien frameworks for other cultures. His only solution is the unsupported assertion of the 'partial similarity' of humankind as a basis for cross-cultural generalisation, without which explanatory understanding is very hard. Just so, and the weakest point in post-processual epistemology.

The hard truth that symbols entail relative meanings which change through time or space or context is underlined in many contributions. Careless Hulin draws a contrast between the uses made of symbolism in villages and cities in Near Eastern states, with cities rarely allowing village symbolism to disturb the centrally-oriented order. Kassam and Megersa outline three different contexts in which the same symbols are used amongst the Oromo Booran: hierarchical contexts, initiation rites and procreative ceremonies. Similarly, Kleppe outlines the context-dependence of symbols for cultural protection, political authority or ethnic group affiliation. As Lemonier despairingly asks, which material culture is used to express the ideal social order and which omitted? In his Aboriginal studies, Layton identifies two kinds of status which are signalled in very different media: egocentric status, marked by ephemeral rituals, and sociocentric status, signalled by durable material culture including body decoration. Weissner relates similar principles in her studies of style, stressing how certain situations switch on either the personal or the social aspects of an identity; she hopes that stylistic studies may indicate the changing balance between individuals and social groups. The problems of archaeological interpretation of ritual symbols are illustrated by two case studies: Pilali-Papasteriou's study of Minoan peak sanctuaries and Biaggi's analysis of Maltese Copper and Bronze Age figurines. Interestingly,

in each case, figurines have been declared to be 'male' by predominantly male archaeologists, without any supporting evidence: the feminist alternatives are just as interesting.

A major theme of post-processual archaeology is the mapping of the symbolic order onto the landscape: three writers make this topic central to their work. Roland Fletcher makes out a general case for the significance of non-verbal, spatial meaning over verbal meaning, since the former operates at broader time-space scales than the short-term, small-scale contexts of the latter. In his claim that non-verbal order exerts selective pressure on verbal meaning, Fletcher takes up an old biological theme, once again ignoring the significance of individual over group selection. His extreme view, that "If there is no direct correlation between the two, the imposition of verbal meaning on material behaviour is logically improper" (p. 38) is hotly disputed by Tilley, who argues that there can be no meaningfully constituted non-linguistic semiological system. Fletcher's claim for the autonomy of the meaning systems of spatial messages also runs counter to the basic assumption of much recent architectural work based on Hillier and Hanson's notion of the essential unity of social and spatial realities. Clearly, a closer confrontation of these theoretical issues is urgently required.

The case studies centred on spatial symbolism are two of the best papers in the entire volume. Criado's superb statement of the megalithic problematic deserves to be read by all European prehistorians and many others, while Yates contributes one of the best examples of research within the Bourdieu paradigm yet published. Criado defines megaliths as "territorial symbols which are also socially active" (p. 79), thus criticising the post-processual archaeologists for forgetting megaliths as territorial events. He recognises (p. 86.) the consistent links between megaliths and topographic boundaries as the incorporation of the natural environment into the social organisation of the landscape. He also makes a

valuable distinction between the mortuary attitudes of hunter-gatherers, whose timeless relationships with the ancestors obviates the need for formal burial of the new dead, and those of farmers, whose new dead are vital terms in a kinship calculus requiring formal, open and public burial. Yates investigates the social space of the Lapp tent, which is used as a tangible classification system for the divisions and hierarchies between things, persons and practices. He discovers that space, material items, the division of labour and ritual all form part of the same structure, itself a transformation based on gender relations. It is unfortunate that social space played such a minor role in this volume; there is clearly much high quality work to come in this sub-field.

Finally to politics and archaeology - the inescapable origin-point of the World Archaeology Congress. In a post-processual-archaeology-for-first-years article, Tilley defines his chain of context for the relationship of politics to archaeology: from politics to morality, to values, to interests, to meanings, to texts (p. 193). This chain is strengthened by Ian Hodder in his introductory chapter, when he states (p. 70) that "To be able to fix meanings is to have power". His definition of post-processual archaeologists as the phase in archaeological studies when the dichotomies between culture history and culture process are transcended will be argued long and hard but there can be no doubt of Hodder's power as the leader of post-processualism in Cambridge. In order to undermine the western domination of the text in this volume, Hodder assigns a random order to the chapters (key = the numerical array initiating the review). This should not fool anyone: the random order of chapters sprung on the contributors without warning or assent, is window-dressing, an unsubtle attempt to disguise the real power Hodder holds as editor. If his name was not on the cover of the book we would perhaps take Hodder's use of editorial power

more seriously. It is fitting that the reviewer should end this review with the modest words of the editor (p. 70):

"The authority invested in me as editor of a worldwide set of papers, given further prestige through publication by a significant firm of publishers, has to be 'brought off' using established skills ... My own power and prestige derive precisely from my ability to control the free flow of signifiers, and to link structures together in this particular strategic context. It is the management of the relationship between structure and context which both depends on and creates power".

It has long been my opinion that post-processualism developed in Thatcher's Britain, with its leaders bringing politics to the forefront in archaeology, because they lacked alternative opportunities to make an impact on the public and political life of Britain. It did not ever seem likely that their leader would make such an uncamouflaged credo of his ambition for power in a World Archaeology Congress publication.

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HODDER, I *Reading the past: current approaches to interpretation in archaeology*. Cambridge: Cambridge University Press, 1986. xii, 194p; illus. ISBN 0-521-32743-1 (Hbk); 0-521-33960-x (pbk). Hbk: £20.00; pbk: £6.95.

By the time this review is in print, the book itself will be another historical text in the story of the development of post-processual archaeology, its survey of 'current approaches' well overtaken by other publications. It would be a pity however, if this important work did not receive some notice for it marks an important turning-point. It shows when it became possible to recognise that we were out from under the shadow of the

fiercely prescriptive 'new archaeology', able to survey that phase in the history of archaeological thought with a degree of perspective and detachment. And who better than Ian Hodder to do it?

The best points about this survey are its clarity and brevity. Hodder begins by setting out his own position, essential if one is offering a perspective. In 1981 he had glossed David Clarke's famous 'loss of innocence' essay, replying that archaeology would not reach maturity until it broke out of its fixation with positivism, functionalism and systems theory, and opened up to 'debate and experiment with a wide range of approaches to the past'. By the middle of the 1980s that variety of debate was beginning to emerge. Hodder disclaims omniscience and admits partiality. In particular he omits discussion of the contribution made by ecological and economic archaeology, which he points out has been adequately reviewed by others.

Arising from his own work (*Symbols in action*, 1982) Hodder concludes that the nub of the problem facing archaeological theory-building is to resolve difficulties of admitting the role of the individual, the nature of variation in material culture, the ways in which individuals impart and 'read' cultural meaning, and the ways in which cultural meaning is historically conditioned. Whether one is looking at the relationship between behaviour and material culture, cause and effect, or the relationship for ourselves between fact and theory, Hodder proposes that we shall only understand if we recognise the importance of the role of the individual operating within a cultural context, which itself derives from historical process.

In the light of this starting position it is scarcely surprising that Hodder's series of chapters reviewing the systems approach, structuralist, Marxist and contextual archaeology, and archaeology and history, finds most of them wanting. His reviews are lucid, economical and critical but fair; they recognise the valuable contributions to the advancing

mainstream made by each school. The series of reviews leads into a short section on ethnohistory and thus to more of Hodder's own work concerning the importance of context for the 'reading' of the past. In the final chapter, an introduction to the post-processual world, we are very briefly shown something of the variety of new approaches which was just beginning to burgeon in the middle of the 1980s.

The book is a landmark, for it represents the first cool view of what archaeology had gone through in the 1960s and '70s, written by someone at the centre of contemporary developments, who sees where he thinks the process is leading. It is slim and easily read; it is worth buying and affordable; and it should be a very helpful guide to students too young to be classed among the survivors of the revolution, who have their own memories of the traumas or the triumphs.

Looking back it is horrifying that archaeologists were so ill-educated in terms of philosophy and narrow in their understanding of the meaning of science. One hopes that we are now closer to catching up on modern historical and social thought. Looking forward, one wonders which of its many new faces archaeology will present to the public - and, just as importantly, to those public servants who decide what is relevant enough to be funded.

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INGOLD, Tim *Evolution and social life*. Cambridge: Cambridge University Press, 1986. xv, 431p. (Themes in the social sciences) ISBN 0-521-24778-0 (Hbk); 0-521-28955-6 (pbk). Hbk: £35.00; pbk: £12.50

This book attempts to address the concept of evolution as used within social anthropology. As such, much is of interest to the archaeologist, and not only those concerned with early man. It considers much of evolution at theoretical level: discussion is general rather than specific and, with such a broad sweep, is not easy to summarise effectively. A few themes which are both exciting and relevant to current theoretical archaeology are briefly outlined below, but others may see different strands within this book as more relevant to their interests.

The first part of this book is, perhaps not surprisingly, taken up with discussion of Darwin and his contemporaries, their theories and intellectual antecedents. There are valuable insights relevant to much of the history of archaeology which has tended to concentrate narrowly on developments in techniques classifications and culture history.

In the chapter entitled 'The substance of history', Ingold examines some of the issues now highly relevant in archaeological theory. Are we trying to do 'science' or 'history'? It is extremely useful to see how the major anthropological figures such as Radcliffe-Brown, Evans-Pritchard, Boas, Kroeber and Levi-Strauss fit into the debate now circling back to post-structuralist prominence after its earlier exposure with the innovations of New Archaeology. Throughout there is an overriding concern to differentiate between cultural adaptation of populations (as seen in much New Archaeology) and the social life of individuals (as now emphasised in post-processual archaeology). The second half of the book is dominated by this theme, attempting to

differentiate animal from human behaviour which allows an appropriate definition of 'social'.

There is surprisingly little use made of archaeology in the book. Time, a concept which archaeologists have only recently begun to grapple with, is developed at some length and the archaeologists do figure slightly in this section with discussion of Bailey's ideas. There is a short discussion of the problem of definitions with regard to tool making and using, and early in the book of inferring about prehistoric man's intentions from material remains. Elsewhere prehistory occurs in passing; perhaps this is because data or theory from the subject was not considered relevant, but it is more likely that anthropology alone provided enough material to discuss. However, it is unfortunate that the obvious links between the two disciplines were not emphasised by a scholar who is interested in archaeological matters. Indeed it is from within archaeology that the testing of many theories concerning social evolution will have to take place. Nevertheless, this is book about theory, and much of it is theory also used in archaeology.

To develop some of the concepts so cogently exposed by Tim Ingold is for us to do within our discipline. The mechanistic evolutionary models so loved by many archaeologists are undermined; let us hope that there will be a response to this challenge.

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INIZAN, Marie-Louise. *Préhistoire à Qatar; avec les contributions de Raymonde Bonnefille [et al.]*. Paris: Éditions Recherche sur les Civilisations, 1988. 233, [60]p; illus (3 col. pls). (Mission archéologique française à Qatar, t. 2) Additional title page, contents and summary in Arabic. ISBN 2-86538-168-4 FF. 132.71

This is an elegantly produced volume which includes substantial summaries in English and in Arabic, published jointly by the C.N.R.S. and the Ministry of Information of Qatar. The first volume appeared in 1981, and described the work of the first two seasons of research into the prehistory of what is now the Arabo-Persian Gulf state of Qatar. Volume II, which has 12 contributors, deals with the other four seasons, bringing us up to 1982; the results demonstrate how much archaeological information can be retrieved from unpromising situations by dint of exhaustive attention to detail and the collaboration of an interdisciplinary team with clear goals in mind. J. Desse reports on seabream teeth and ear-bones (otoliths); this and a dearth of other fish vertebra, which indicated specialised fishing, the discarding of fishheads and the probable export of the (sun-dried?) fillets. M. Choquet examines the molluscan fauna while the environment of Qatar, which was apparently first populated during the Holocene in the sixth millennium by groups exploiting marine resources, is dealt with by palynologists Bonnefille and Rioulet.

No Paleolithic traces have been found by P. Gehin. In a well-illustrated report, he reconstructs the course of geomorphological changes which have shaped the peninsula and its shorelines. It is a little surprising to find him using the now unfashionable Alpine terminology (Riss, Wurm etc.). The author reports on the excavations at several sites and studies the structures at Shagra and Khor. The flint industries are discussed in detail, giving particular attention to the

technology. Tillier, Hublin and Vandermeersch describe a human cremation burial, the first prehistoric skeleton to be found in Qatar.

The valuable result of this work is the placement into a secure chronostratigraphic framework of the, until-now undated, surface finds of the pioneer Holger Kapel, which he divided typologically into four groups, A, B, C and D. Two distinct phases can now be distinguished in early Holocene Qatar:

(1) the earlier one is represented at Bahath and at the excavated site of Acila, which is aceramic, dated to the sixth millennium, and which produced arrowheads of Levant PPNB type (the industry equates with Kapel's B-Group).

(2) a later 5th-4th millennium phase at sites around Khor Bay, with an industry characterised (apart from Ubaid-like painted pottery) by bifacial 'axes', short tanged-and-barbed 'desert points' and scrapers (Kapel's A, D and C groups respectively). In searching for comparisons, Mme Inizan accepts Masry's claim of a continuous B-D-C sequence at Ain Qannas, a spring mound in eastern Saudi Arabia, but this is doubtful given that all the arrowheads he illustrates are of D-Group type. In fact, there seems to be a gap between the two phases all over the region. Microprobe analyses of the paint on the Ubaid-like sherds by J. Courtois and B. Velde, and a study of the clay by Ricq de Bouard showed that the pottery was imported, not necessarily from Sumer.

There are numerous photographs, maps, drawings and graphs as well as the obligatory colour photos of the Emir and his heir apparent, and there is an index of proper names and places.

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ISAAC, Benjamin *The limits of Empire: the Roman army in the East*. Oxford: Clarendon Press, 1990. xiii, 492p; 13 figs; 5 maps. ISBN 0-19-814891-7 £50.00

Somewhat over a decade ago, a strategist attempted to do what archaeologists and ancient historians had struggled towards, and in the end fought shy of, namely to review the evidence for the strategic stagecraft of the entire Roman Empire. The result was E. N. Luttwak's *Grand Strategy of the Roman Empire*, which, though widely read, was never universally accepted. Now Professor Isaac has examined various aspects of the Eastern Empire in a work that should become standard. In short, an archaeologist and ancient historian has attempted just such a synthesis, for a limited area, and come up with different results.

Given that no two treatments of the same subject matter will ever be alike - and Professor Isaac's is radically different - why is another account important? The answer must be for two reasons: first of all because of the actual balanced treatment of the region - the 'fault line' between the Roman and the Persian Empires, and in particular the areas of Syria, Arabia, and Judea; and secondly because the interpretation thereof has implications that extend far beyond it, to the study of the Empire itself. The approach is broadly-based: use is made of published archaeological material, 'mainstream' historical material, and, of course, inscriptions. But Professor Isaac also uses the Talmud - much of it of course written during the Roman period - in an attempt to provide a different approach to the Romanocentric. Those not familiar with Eastern matters may find the socioeconomic potential of this religious material surprising, though such analyses are, as the author admits, not new (p.7). There are nice vignettes of individual sites (now treated from a more purely archaeological standpoint in D. Kennedy and D. Riley *Rome's desert frontier* (published almost simultaneously) which place them in their historic context, and useful appendices, including

one on Roman army sites in Judea. Historical questions are asked (and answered): what were the Romans' aims? How did they attempt to achieve them? What difficulties did they face?

Secondly, this is more than a (re)assessment, since its conclusions are of interest to those working elsewhere. For example, the issue of the relationship between emperors, the cult of the personality and building-programmes, almost fossilised since the late Sir Ronald Syme's *The Roman revolution* (written with 1930's Europe in mind) is covered in Chapter VIII. Faced with more epigraphic and other evidence than some provinces in the West may ever hope for, the author can state "The development of towns was the development of local conditions and initiative, not the work of an imaginary 'State Ministry for Urban Development'". (p.370). Or on frontiers: "Roman military policy was dictated by events in the field as a matter of necessity, for the Roman army did not have the geographical knowledge to permit a process of military decision-making at a higher level". If this conclusion is correct (and some may dispute the value of negative evidence), what price Grand Strategy now?

One other consequence is particularly notable; if this conclusion is correct, how do we reconcile this with the apparently purposive trade which studies in the Western Empire are increasingly showing - and for which a knowledge of routes, markets and terrain would be a *sine qua non*?

This book shares the cautious tone of another work on the archaeology of power - Ramsy MacMullen's *Corruption and the decline of Rome* (1989). For both works call into question the notion the the Roman Empire had ever been a monolithic institution. Professor Isaac's book is to be recommended as an exercise in the treatment of evidence. Paperback *now* please!

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JOHNSON, Stephen. *Rome and its empire.* London: Routledge, 1989. viii, 167p; 39 figs. (The experience of archaeology) ISBN 0-415-03267-9 £19.95

This is a 167 page hardback volume with a rather poor colour photograph on its cover. It contains 10 thematic chapters and 39 illustrations some of which, such as fig. 16, are only just large enough and not all, for example, fig. 32, are drawn to the highest standard. Some, however, such as figs. 25, and 29 are very evocative.

The photographs include some, such as fig 29, which are perhaps too dark but also some very clear examples. The book is not always clearly written and, much more alarmingly, it is completely unreferenced. Examples go unacknowledged, and there is not even a 'Selected Bibliography'. There is no indication to the reader where to look next if interest has been aroused.

This book sets out to provide an introduction to Roman-period archaeology for undergraduates and the general reader. Understandably selective in coverage, the topics are well chosen. The first three chapters review the history of the archaeology of the Roman Empire. Chapter 1 considers the early archaeology before the eighteenth century, Chapter 2 the nineteenth century, and Chapter 3 the twentieth century. These provide a summary of the development of the subject. I find it rather surprising, however, that neither Haverfield nor Collingwood appear in the index, and, in Chapter 3, post-war archaeology is confined to under 3 pages! Nevertheless, these chapters contain much useful information.

In Chapter 4 Johnson addresses a crucial and controversial issue - the relationship between archaeology and history. He is, in my opinion, quite correct to stress that the link between the two subjects runs too deep to enable total independence. Nevertheless, the characterisation of each discipline is, perhaps, poor. Your reviewer is not sure that archaeology

embraces papyrology, and that epigraphy need be seen as a specifically archaeological endeavour. Are not books, or the Vindolanda 'tablets', artefacts in the same sense as inscriptions? Nor does he consider it obvious that archaeological, more than historical, data are necessarily about the individual and the particular, as is claimed here. However, Johnson urges source-critical caution in employing both archaeological and historical approaches, which must be welcomed.

Chapter 5 addresses that most visual aspect of Roman archaeology - architecture. The possible non-standing sources are summarised and the problems of dating and classification addressed, as are the difficult problems of the reconstruction and of the ambiguity of evidence. The ethical problems of the reconstruction of standing monuments and the danger of misinterpretation are then considered.

In the sixth chapter the archaeological examination of Roman sites is outlined. Your reviewer would endorse the plea for care to be taken in the excavation of overlying deposits when examining Roman-period sites. The chapter also sets out some difficulties in studying Roman towns, and correctly stresses the value of work in modern suburbs, their ancient hinterland. This seems a clear statement of the problems of urban archaeology. The possibilities of recognising rural sites are then outlined and the importance of continuing discovery stressed. The use of previous archaeological records and textual sources, as well as aerial photography are discussed, and the associated problems outlined. It is especially useful to draw student's attention to the difficulties of using distribution maps due to differential survival and discovery. Geophysics are also briefly referred to but get little, and the least, emphasis. This is a shame, because they hold considerable promise for the non-destructive examination of Roman-period sites.

In Chapter 7 the study of artefacts is discussed. Their abundance is noted and the assignation of function is considered. It is

stressed that not only spectacular finds provide useful data. Problems of recognising function and status, and methods of dating, are considered, as are a number of specific classes of finds. Much of this is very important in an introductory book, such as the observation that wreck sites do not inform us of the direction and volume of trade overall, but it is marred by the inclusion of only a superficial discussion of deposition and post-depositional modification, crucial issues for many of the Chapter's concerns.

Turning to the Roman environment, Chapter 8, it is amusing to see that the botanist is an 'expert', but an archaeologist receives no such title! Much here is useful: geomorphology, zoological and botanical data, are discussed, but there is a very broad definition (not only held by Johnson) of what constitutes 'environmental archaeology'. Here it includes human bones: are these really an aspect of the environs of our sites?

Chapter 9 looks at the potential archaeology, or rather the need to avoid the use of material evidence as a 'visual aid', and the application of mathematical and geographical approaches. This hint of theoretical archaeology is perhaps surprising in a book which otherwise contains little evidence of contemporary theoretical thought or concerns.

Lastly we come to Chapter 10, on the future of Roman archaeology. Here Johnson questionably states that archaeology needs to be as independent from history as possible, but more sensibly later refers to the need to use all the available evidence in reconstructing the past. It would seem difficult to reconcile these two opinions.

Conservation of sites versus research by excavation is also discussed in Chapter 10, with most of the standard arguments being rehearsed. For how much longer are we going to have to hear about leaving 'safe sites' for the future when techniques will have been improved? Having watched major sites eroding into the sea and being destroyed piecemeal by natural and human agencies, this sort of argument can hold

little force for any of us today. Exactly which are the 'safe sites' which can be left for the future? When and how do we decide that techniques are sufficiently advanced to excavate a specific site? Is this not too complex a question for an introductory book?

Chapter 10 then addresses the selection of sites for excavation in rescue situations. The controversial strategy of concentrating resources on a few areas is outlined. Again, does this belong in an introductory book?

The book ends by stressing the importance of not romanticizing the past, argues against the 'handmaid of history' approach, and the cultural dimension in how we view past periods. This all seems entirely reasonable.

This is a popular book written by a serious scholar, it contains much which is useful, but in so far as it aims to provide a general introduction to the archaeology of the Roman Empire, your reviewer fears it does not completely fulfil its promise.

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JOURNAL of theoretical archaeology; *edited*
by K. R. Dark. London: [n. pub.] No. 1,
1990 [No ISSN]. £4.95

This is a new journal, covering all aspects of the theoretical debate in current archaeology. The first number came out in 1990 priced at £4.95 (presumably to widen its accessibility to, for example, the lower-waged and Third-World audiences).

The first aspect to strike one on seeing this journal is its impressive and attractive computer-graphic cover (appropriately entitled 'Time and Space', so your reviewer is informed). The printing is not of the highest quality, but hopefully this may be improved in future issues.

The contents begin with a clear and concise editorial by K. R. Dark, spelling out the aims of the *Journal*, as a "Forum for the theoretical debate and for the publication of new theoretical work (p.2)" from a non-partisan position.

This lack of bias is indeed borne out by the articles chosen for publication. Even the order of the papers is strictly alphabetical, according to the authors' names:

1) James A. Bell *Method in spite of rhetoric*.

This is a masterly article, which attempts to show the sterility of entrenched theoretical positions: "If the split between processual and post-processual approaches does not benefit theory development, why does the polarity linger on? (p.7)" He concludes that what is important is the interest of the theoretical tools used and of the problems tackled, and that the fruitfulness of the investigative methodology should not be measured by the political colour of its terminology.

2) Ross Samson *Defining right from wrong*.

This is a post- / anti- / non-processualist paper from a Marxist scholar, which tackles the fundamental problem of definition of the data-base: how does the taxonomy which we use colour our perception of the data-base? He examines the danger of subconscious interpretation-shift when using loaded descriptive terminology, such as 'castle' or 'villa'. He argues that comparison between, for example, aristocratic settlement of different periods, might be facilitated by questioning our perception of their classification.

3) Eleanor Scott *A critical review of the interpretation of infant burials in Roman Britain, with particular reference to villas*.

An article from a feminist perspective. It points out the danger of applying ethnocentric interpretation to superficially similar societies, using as the examples that current hot-bed of discussion - the infant burial. She suggests that Romano-British examples may be seen as an attempt by women to assert themselves through manipulating ideological links in time of cultural change. Romanists will be interested by her

interpretation of Romano-British infant burial as an aspect of ritual.

4) Ulrike Sommer *Dirt theory, or archaeological sites seen as rubbish heaps*.

A fascinating study of the social implications discernible in changing attitudes to hygiene and social manners. She includes a series of diagrams illustrating how different forms of waste-disposal can be recognized, classified, and interpreted from the archaeological record, and how they modify that record.

A number of general comments come to mind about this journal:

Theoretically open-minded.

The diversity of the papers truly reflects the stated editorial policy of neutral bias. We have a processualist article proposing a generalizing model, a feminist perspective, a post-processual critique on methodology, and a philosopher's plea for moderation on the part of the contending schools (a view with which one can wholeheartedly agree)!

Jargon-free.

Clarity and plain language form a welcome and unifying thread through all the articles, irrespective of their theoretical stance. This is particularly impressive in a forum for **constructive** development of archaeology, lessening the danger of mutual understanding or sterile withdrawal into 'cliques', writing for the converted in cryptic and externally unintelligible rhetoric.

Cosmopolitan.

The contributors are not just from Britain, although all the articles are in English (the foreign language most likely to be understood by the majority of non-native readers). Jim Bell is based at South Florida, U.S.A., and Ulrike Sommer from Frankfurt in Germany. This diversity is reflected in what has already grown into a world-wide readership. This international dimension, combined with the wide theoretical spectrum and clearly understandable language, has exciting implications for the development of archaeology especially in the crumbling totalitarian Second- and rapidly 'opening-up' Third-World.

No period bias.

In the space of four articles, we have something for the Prehistorian (Ulrike Sommer's dirt theory), the Romanist (Eleanor Scott), and those interested in the later periods (Ross Samson). The implications from each article are, however, applicable to those working on all periods and forms of society.

Something for the field-archaeologist.

Ulrike Sommer's article is particularly useful for on-site interpretation, even by those little concerned with the theoretical debate. It is rare to find models for depositional and post-depositional factors so clearly set out.

In conclusion, this reviewer unhesitatingly concurs with the number of colleagues who have already commented to him on the quality and shrewd editorial judgement shown in this new journal. 'J.T.A.' finally fills what was an anachronistic and inexplicable gap in archaeological periodicals.

On looking again at the futuristic and artful cover, there came to mind the recent, muddy, redesigning of the cover of another periodical, now looking like a fading photocopy. Does this mirror the decline and rise of *fora* for theoretical debate? Subscribe to 'J.T.A.' and find out for yourself!

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KATARY, Sally L. D. *Land Tenure in the Ramesside period*. London: Kegan Paul International, 1989. xxiii, 322p; map. (Studies in Egyptology) ISBN 0-7103-0298-3 £55.00

This is a study very much aimed for the specialist in economic matters. As the preface by Jac. Janssen remarks it is one of the works that can show the value of a new approach based on

statistical analysis of texts. In this case the text is the Wilbour papyrus and its coverage of 2,800 agricultural plots during the fourth year of Ramesses V dated by the author to 1142 B.C. The fields listed lay between the area north of Crocodilopolis and near Tihna in the south a distance of around 140kms. Four periods of assessment are recognized corresponding to about three weeks in July. Each of its 279 paragraphs gives the name of the institution owning the land and plot sizes in linear land cubits or in area ie. *arouras*. A competent and also a less able scribe compiled it.

Like Papyrus Harris the three major temple groups of Thebes, Heliopolis and Memphis form separate categories with a fourth one reserved for lesser foundations, the fifth being secular. The material of such a document deals with items such as herbage, *khato* and other types of land, also *mine* and *posh* entries.

The author points out the problem that most place names in it are as yet unknown. She quotes Gardiner's valid observation that small temples unlikely to own lands *outside* their immediate area are thus no guide in this matter, and adds the equally valid suggestion that because the said temples were not affiliated with those in the three main great temple groups does not mean that they themselves were small, citing the great Osiris temple at Abydos as an example of this factor.

With regard to the actual format of the papyrus entries what are termed non-apportioning paragraphs of Text A write their figures in red ink on each assessment line, while land apportioning entries use combinations of red and black figures thus avoiding confusion with the others. Non-apportioning deal with land cultivated collectively for a institution by unnamed labourers, apportioning with land apparently leased to individual small holders who paid a small "rent" but were otherwise independent. Hieroglyphic examples are quoted of the types of entry used ie. "dry", "waterless"?, "fallow" or "idle", "not seen". Much technical discussion follows relating to the rates of

assessment of these different types of land and previously stated views on the matter are also cited.

The writer makes the interesting suggestion that much, if not the bulk, of the unclassified land in this part of Middle Egypt may have been privately owned, but puts the total as less than 50% of cultivable areas. The existence of much more Crown land than is immediately apparent from the text is also thought likely.

Much of the book, viz. chapters 2-6, is taken up with the statistical method employed and the computer programme used by the author. An example of what can emerge from this is quoted on page 99 where lack of herbage representation for the funerary temples of king Ramesses III, IV and V, explains, together with the loss of the beginning of Section I, why their funerary cults are missing contrary to what might be expected in zone 1.

Chapter 7 deals with nine related Ramesside economic texts, the Turin Taxation papyrus of year 12 of Ramesses XI, P. Amiens dealing with grain transport, Griffith and Gurob fragments, Louvre leather fragments and P. Valençay, to name those really relevant and comparable.

Under the rather pretentious sounding final section, *Major findings and research agenda* is some further useful material given under six results. Firstly Sub variety 1A entries, called scribal shorthand by Menu, are reexamined and the writer concludes that Janssen is correct in defining Wilbour as not being in final form for the use of the state granaries, but is rather one of a number of interim documents from which the definitive one was derived. Secondly under zones of Plot Location and Institutional Groups it is shown that the geographical location of the major cult centres does not follow a pattern relating to the actual temples' own locations but decrease as one gets further from them. Thus the Theban ones decrease on going northwards in this part of Middle Egypt while the Heliopolitan do the reverse. Table 1 shows these land holdings in arouras in the four sections or zones. The Memphite holdings pattern is

shown to be less clear. Thirdly under *Unit of Land Measure and Classification of Unassessed Plots*, the conclusions supports Gardiner's view that entries resembling unassessed land-cubit ones should be taken as aroura based. Table 2 gives Cramer's V values of crosstabulations. The fourth section shows some differences between two or more of the five categories used by the scribes, ie herbage, white goat etc. An important point made here is that just as Papyrus Harris I shows Ramesses III appropriated land belonging to the Ramesseum for his own endowments, so the absence of representation of most of the predecessors of Ramesses III and V suggests a similar state of affairs. This is further substantiated as the author says by the very infrequent references to the lands of kings such as Tutmose II, Horemheb, Seti I and Merneptah. Some of these are important rulers who should appear more often otherwise.

Another important point is the conclusion that the land of large institutions such as funerary and gods' cult temples clustered in locations where the environment was good for cultivation, implying that soil quality and irrigation potential seem to have dictated the situation. Five such places are thus listed as centres of fairly large populations in Middle Egypt.

The fifth section deals with location and the unit measure employed, and consequently covers "riparian" land, while the final covers two significant determinants of size of plot and assessment value. Among the directions suggested for future research it is rightly suggested that the study of the proper names used in Wilbour would be a rewarding and self-contained follow up study.

Regarding the actual layout of this study, it may be pointed out that the map of middle Egyptian sites is too small for easy reading especially of the actual print. There is copious and well chosen foot-noting, and a good and in general fairly comprehensive bibliography. Seven appendices provide much useful information, see in particular that providing statistics on the sex of the cultivator, shown to

be predominantly male. A criticism must be made of the three indexes provided, these being rather cursory, while that relating to persons only covers a small representation of mainly royal ancient Egypt names and none of the scholars quoted in the text are included at all. Despite these criticisms and the inevitable high price of the book, it is fair to say that this should provide an important source for study and reference for historians and archaeologists wishing to investigate Pharaonic economic conditions for many years to come.

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KEAY, S.J. *Roman Spain* London: British Museum Publications, 1988. 240p; illus. (Exploring the Roman World.) ISBN 0-7141-2043-x £17.50

This is the second in the *Exploring the Roman World series*. As Keay explains in the preface, this book is intended to serve the demands of both the professional archaeologist and the touring layman.

This book is divided into nine chapters. Three examine the pre-Roman occupation, the Roman conquest and the administration and structure of the early Roman province. Four are dedicated primarily to aspects of the Imperial period (Society in Roman Spain, industry and traders, religion and Early Roman architecture). Two cover the mid-late Roman and Visigothic periods. The book ends with a gazetteer of sites to visit. The Balearics are not included.

This is the first reassessment in English of the archaeological and historical evidence since Wiseman (1956). Though numerous Spanish syntheses exist they are rather conservative and pedantic. Keay's approach blends a similar attention to detail with a fresh, interpretative

style. The result is a concise, well-informed narrative that covers just about every imaginable theme and still manages to stimulate the reader to enquire further. Neither does the author lose sight of the opportunity to set the Iberian Peninsula within the wider historical and economic context of the Roman Mediterranean, a reflection of his own pioneering work in the field of archaeo-economic research (Keay, 1984a). Furthermore, he illustrates the need to examine and interpret the archaeological evidence within the distinct geographical contexts that make up this large province. There are few criticisms.

Occasionally, the narrative is marred by rather clumsy attempts to address the travelling reader. The lengthy descriptions of mosaics are, no doubt, for their benefit, but are unnecessary and slow down the narrative. On a few occasions the author lapses into a "travelogue" style which is equally irritating.

The description and analysis of the Roman conquest and trends in administration are excellent and thought-provoking, as is Keay's interpretation of the pre-Roman occupation. However, the state of integration of the towns within the province by the 1st century BC, with respect to their participation in the Civil Wars, is not discussed. Furthermore, the role of some Iberian sites as *coloniae* and mints in the late 1st century BC is not noted (eg. Acci and Ilici in the South-East).

The chapters on society, architecture, industry and trade and religion (Chapters 4-7) are excellent and by far illustrate Keay's ability to assess, manipulate and interpret the varied facets of archaeological evidence available. His command of epigraphic and other documentary sources is exemplary.

The one criticism your reviewer would make is a general imbalance in the archaeological evidence presented for town and country sites, the latter receiving far less attention. This is due, no doubt, to the lack of organized surveys. Illustrations of the survey work in the

Guadalquivir (Ponsich, 1974; 1979) or some of Gorges (1979) distribution maps of villa sites would have helped redress the balance.

Chapters 8 and 9, on the archaeology of the 3rd-7th centuries bear the strongest imprint of Keay's own work in this field, particularly his interpretation of the changing relationship between settlement in town and country during the later Roman period (eg Keay, 1984b). Keay draws heavily on the evidence from NE Spanish coastal towns, though the degree to which the pattern of development here is valid for other regions does need some qualification.

Some minor points. As far as I know there were four Vicarello cups, not two (p. 49; Sillieres, 1977). The map of the Augustan road system and *civitas* capitals (p. 61) is most enlightening. The Via Augusta, however should be drawn passing through Carthago Nova. The inland route through Murcia is that of the pre-Augustan Republican road (Sillieres, 1977).

As an introduction to the archaeology of Roman Spain this work will become invaluable. The main text, supported by the appended notes and bibliography offer both essential background for students of Roman Spain and the means with which to continue research should they wish to do so.

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- KEMP. Barry J.** *Ancient Egypt: anatomy of a civilisation*, London: Routledge, 1989. 356p; 11pls; 103 figs; ISBN 0-415-01281-3 £35.00

In this most stimulating conspectus Mr. Kemp surveys the forces which created Egyptian civilisation and shaped its progress throughout the Bronze Age. The author is well-known for his field-work at el-Armarna, which he describes as a major site for the study of ancient urbanism generally. The book is divided into three main parts covering the intellectual foundations of the state, its role as a provider, and the mature product of its development economically and socially. Innovative and generative power functioned from the top downwards. The state intervened massively in the agricultural economy, maintaining stability of supply and prices. It did, however, permit a thriving private sector, although traders did not achieve positions of power. At el-Armarna it is evident that

private houses were also busy centres of manufacture and storage as befitted a barter economy.

The author stresses the importance of el-Amarna as a freshly planned city uncomplicated by earlier structures. Comparison with settlements of Old and Middle Kingdom dates shows a marked relaxation of the grid-like planning then apparent. It should, however, be said that surviving examples of those earlier periods have mostly been built for housing troops and large work-forces employed on special tasks. General conclusions may, therefore, be risky.

What especially distinguishes this book is the penetrating discussion of social and political issues, often showing a striking relevance to present-day problems. There are very full bibliographical notes and copious illustrations, mostly in line. One might just have hoped for a more distinctive title. In an Egyptological library a book entitled *Ancient Egypt*, with or without subtitle, might be virtually invisible.

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KENT, Susan. (ed.) *Farmers as hunters: the implications of sedentism*. Cambridge: Cambridge University Press, 1989. ix, 152p; illus. (New directions in archaeology) ISBN 0-521-36217-2 £27.50

The increasingly blurred distinction between the subsistence and mobility strategies of hunter-gatherers and small-scale horticulturalists is the focus of an expanding literature to which this eclectic volume makes an important contribution. Just as hunter-gatherers are no longer visualised as exclusively foraging societies lacking external contacts, horticulturalists are now less rigidly viewed in terms of their specialised subsistence strategies.

Thus it has become increasingly accepted that both groups may live as close neighbours, interact symbiotically, and share similar exploitative strategies. Within the context of this forager-farmer debate, it has often been archaeologists rather than cultural anthropologists who have provided the opportunities for mutual dialogue as exemplified in this edited volume. As Susan Kent, herself an archaeologist, indicates in the concluding chapter, the main strength of the book lies in this collaboration between ethnographer and archaeologist, and the combination of synchronic and diachronic perspectives on what were once perceived as two very different subsistence strategies.

There are ten chapters in all, including Kent's introductory and concluding papers, with an even contribution by archaeologists and ethnographers. Five of these ten chapters cover data from the New World (Kenneth Kensington describes the Cashinahua of Peru, Leslie Sponsel and William Vickers present data for communities in Amazonia, while John Speth and Susan Scott, and Christine Szuter and Frank Bayham discuss North American archaeological data). Two chapters include groups from Asia (Abraham Rosman and Paula Rubel debate the significance of wild and domestic pigs in Papua New Guinea, while Bion Griffin compares two Agta foraging groups in the Philippines). Africa is represented in a chapter by Susan Kent and Helga Vierich examining ethnoarchaeological data from Basarwa (San) and Bakgalagadi (Bantu) groups in Botswana.

From this geographical and topical array, two of the most important issues raised are: first, the potential conflicts between a mixed subsistence strategy of horticulture and hunting; the former often requiring increased sedentism and population aggregation which implies potential local ecological degradation and dispersal of wild fauna, and the latter necessitating some mobility for the continued provision of essential high quality protein foods to supplement dietary carbohydrates. Second, the symbolic and ritual meanings that attach themselves to the hunting of wild animals as

opposed to the production of domesticated animals, a strategy which may more often accompany a horticulturalist adaptation. The first issue is addressed in various forms by Sponsel, Vickers, Griffin, Speth and Scott, Szuter and Bayham, and Kent and Vierich. The second issue is covered by Kent, Kensinger, and Rosman and Rubel. Finally, there are intriguing implications raised by this book for the further examination of sedentism and its impact on cultural change.

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LIBBY, Leona Marshall *Past climates: tree thermometers, commodities and people*. Austin: University of Texas Press, 1983. xiv, 143p; illus. ISBN 0-292-73019-5 \$25.00

The importance of climatic research could hardly be overestimated in these days of worry over our future environment. In four essays the author sets out to show how the study of past climatic changes (as distinct from short-term weather-patterns) can be deduced from tree-ring thermometry; in turn this can aid the prediction of future environmental trends. A tree is a thermometer which can store, in each of its annual growth-rings during its lifetime, data on the temperature of surface sea water, which comes to it (via evapo-transpiration) in the form of rain or snow; these temperatures can be retrieved because the stable isotope ratios in oxygen and hydrogen, absorbed into the wood as water, can be measured and statistically transformed to produce a temperature calendar. So far, a chronology has been, constructed, using overlapping samples from the trunks of ancient trees, logs, beams etc., which provides a record of climatic shifts for c. 8,000 years into the past. It is a valuable check on the carbon-14 calendar, in which 'blips' can now be recognised.

The four essays deal with different but related topics, each having its own bibliography. There is a preface by Professor Rainer Berger and in the first essay (an 'Introduction') the author reviews the history of the discovery of stable and radioactive isotopes. In the next section (Chapter 1) she explains the principles of the complex chemistry which has resulted from research by the Atomic Energy Agency and the World Meteorological Organisation into isotope fractionation in ocean-distilled global water-vapour. There follows a more straightforward account of the reasearch of the author and her team into tree thermometry. Wood samples were sought from institutions worldwide, which were treated, tested and the isotope variations measured. Historical records which had a bearing on past climates (commodities, prices, wages) and other indicators such as varves, were examined.

The final chapter reviews the archaeological evidence as to how humans, from early hominids to the Cro-Magnons and their successors, reacted to climatic change as it affected their ceaseless quest for food. There is a fascinating excursus on the subject of 'Shoes through the Ages'. This chapter is too general for prehistorians and may be designed for geophysicists and chemists who will have read and fully comprehended the foregoing essays, as well as the three Appendices, which deal with mathematical formulae and theoretical matters.

The argument, that by utilising the above-mentioned indicators we could understand past climatic phases and would be able more effectively to plan future food-production, to forecast the weather and conserve resources, is clearly presented. The volume should provide much insight to readers both scientifically oriented and just genuinely interested in the 'workings' of our planet.

Illustrations are plentiful and there is an index.

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MACKENZIE, Andrew. *Archaeology in Romania: the mystery of the Roman occupation.* Robert Hale, 1986. 183p; 16pls. ISBN 0-7090-2724-9 £14.95

Books in English on Romania during the Roman period are a rarity and any contribution to the subject is sure of at least a cautious welcome. However, the title does not adequately reflect the range of the author's interests. The book has an introduction on the Geto-Dacians, a few pages on the Roman period, then a lengthy section on pre-Roman Dacian citadels and hoards before jumping forward to a brief digression on the medieval sources. The most useful passages are those which describe interviews with archaeologists and those which list exhibits and monuments of interest in museum collections. But the work is in no sense a guide book. Mackenzie has a mission to reveal to the world the truth which Romanian archaeologists have proved: that the 'ethnogenesis' of the Daco-Roman population was so important and so enduring a phenomenon that there is clear evidence for continuity between Roman Dacia and the modern state of Romania - despite attempts by Slavs and Hungarians to refute this argument by devious and misconceived interpretations of historical sources. Mackenzie is, by profession, a journalist, and he freely admits that most of his information comes from popular newspaper articles and interviews with archaeologists in Bucharest and provincial museums. The descriptions of sites and finds are consequently of little use to the specialist. Some of the spurious arguments produced to prove the unity and continuation of the Daco-Roman population are included in the author's account. Two examples suffice. Fourth century coin-finds in Romania are considered proof that Romania was not abandoned by its Daco-Roman population. However, the individual coins and coin-boards of 4th century date are few, and their appearance in Romania can be explained as trade or booty and tell us nothing about the character of the population. Moreover, it is

certain that, from the late 250's, there was no Roman monetary economy operating in Dacia. Inscriptions are also considered as proof of a 'Daco-Roman ethnogenesis' when what is remarkable about Latin inscriptions of Dacia is the rarity of Dacian names and the curious lack of evidence for 'Romanization' of the native population, so common in other western provinces of the Empire. Irrespective of the truth if these claims for Daco-Roman unity or continuity of population, it is unfortunate that archaeological evidence has been incorrectly interpreted but it is even more irritating that archaeologists have been deterred from pursuing important lines of investigation wherever they may appear to conflict with dogma.

The real interest of Mackenzie's book is that it faithfully reproduces the 'arguments' which Romanian archaeologists have produced to affirm the historical integrity of the present Romanian state by demonstrating an historical continuity between the frontiers of the Dacian kingdom and modern Romania - including the Dobrogea which, in the classical world, was more closely linked, culturally and linguistically, with Greece and Asia Minor than with Transcarpathia. To anyone not acquainted with Romania, it must seem incredible that distinctively Slav pottery is called "Early medieval" in order to avoid any suggestion that the Slavs ever occupied Romanian territory. Even the general reader might consider it strange that Veliko Turnovo, the capital of the Second Bulgarian kingdom, is considered the centre of a 'Romanian/Bulgarian state' when it certainly had nothing to do with Romania or a Romano-Dacian population. Romanian archaeology, with notable exceptions, has officially followed a view of history for over 40 years which served the Romanian regime but was of no credit to Romanian scholarship. It is a measure of the power of an oppressive ideology that it persuaded or induced all of Mackenzie's contacts to toe the party line. The book demonstrates how the laudable aim of establishing a national identity

through an understanding of the past can be perverted into the quest for nationalism of a primitive form, moulded to suit political doctrine.

Romanian archaeology has not been the only recent victim of ideological conditioning but it has certainly been one of the most fanatical. Now that revolution has removed the ideology which archaeology was required to support, Romanian archaeologists can draw inspiration from the pioneering achievements of Parvan and Tocilescu as well as from great scholars of the recent past, such as D.M. Pippidi, whose academic integrity was not corrupted by political pressure. The greatest challenge facing Romanian archaeologists will be to reassess honestly the evidence for their own past and it is hoped that the intransigent fanaticism, reproduced so well in Mackenzie's book, will remain an interesting lesson in historiography but a redundant page in an otherwise creditable history of archaeological research in Romania.

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MACNAMARA, Ellen *The Etruscans*.
London: Published for the Trustees of the
British Museum by British Museum
Publications, 1990. 72p; 92 illus (some
col). ISBN 0-7141-1718-8 £5.95

The series of handbooks from the British Museum goes from strength to strength, providing reliable overall accounts within a slim volume. Here we have forceful prose, without the hyperbole of many another book on the subject, combined with due reticence where the evidence demands it. The illustrations are chosen mainly from the BM collection; a few are printed at too small a scale to be very useful.

The selected further bibliography in English will reliably lead the reader into further fields (though not inexpensively with Steingrauber's *Etruscan Painting* included!).

While there is little in general terms that can be faulted, a few points of detail may be made. It is misleading to a lay reader to say that Herodotus tells us that the Etruscans migrated from Lydia around the twelfth century B.C. (p. 10). A word or two on coastal sinking might have been in order, and it would seem to your reviewer a little too "green" to assume Etruscan awareness of soil erosion (p. 66). A slip on p. 41 allows Greece to flourish in the decade (read "decades") after 480; and in the caption to the helmet dedicated by Hieron after the battle of Cumae the reading of the two companion pieces found more recently at Olympia should have been included. A reference to the artistic influence of Aegina (or a neighbouring school) in the early classical period, as ably argued by Cristofani was missed. The table of Etruscan letter forms on p. 60 should have had a note pointing out that they are rendered retrograde; even so, fig. 81b is printed upside-down. A nice touch, which your reviewer has not come across before, is the use of "fair" where we so often write "festival". Outstanding in the generally restrained use of evaluative terms is "outstanding" followed by "most important" on p. 67 (where MacNamara is perhaps unnecessarily reluctant to affirm that Etruscan wine was exported to the Rhone valley). This is a very worthy companion for Cristofani's *Etruscans* as a general introduction, and has, moreover, a largely different range of illustrative matter.

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MACREADY, Sarah and THOMPSON, F. H. (eds) *Art and patronage in the English romanesque*. London: Society of Antiquaries of London, distributed by Thames & Hudson, 1986. viii, 184p; 47pls. (Occasional papers, Society of Antiquaries of London (new series), 8) ISBN 0-500-99043-3 £18.00

An exhibition allows the collecting of related items in one place which might otherwise not be available for direct comparative study. Increasingly it has also provided the opportunity for conferences at which the latest views on the subject may be aired and later published. Two organisations, the Society of Antiquaries and the Victoria & Albert Museum, took the opportunity provided by the exhibition of English Romanesque Art 1066-1200 to invite leading figures in the subject to share the results of recent work. This book is the result. Such parentage was unlikely to give rise to a unified end-product. Twelve papers cover such diverse topics as sculpture and music, metalwork and bestiaries, illuminated manuscripts and a Bishop's chapel.

The exhibition was the brainchild of that doyen of Romanesque studies, George Zarnecki. That he should be accorded two papers was to be expected. In the first he once again addresses the subject of sculpture. Much of his subject matter was not on display as it still forms part of upstanding buildings. Fortunately the 'Sigmund' relief from Winchester does not and its presence allowed debate upon the Viking influences on English Romanesque. This leads on to the inevitable use of stylistic dating which pervades the whole volume. Inconsistencies creep in and 'accidents of survival' are used to explain early examples in Germany but are conveniently ignored when citing a lack of pre-Conquest evidence in England. By the end of the paper the reader is left wondering just how much reliance can be placed upon such categoric statements as the Daglingworth and Tarrant Rushton sculptures 'must have been executed by Lombard

sculptors' or the capital friezes at Leominster and Rock arrived 'not from Milan or Pavia, but from Saintes and Fontevrault'.

By contrast Stratford ducks the issue of the direction of influence when comparing the metalwork of England and Lower Saxony. He bravely highlights a major problem which art historians do not normally consider: 'do we have any right as historians to batten onto the few events of which we have any knowledge and manipulate them to our own ends as "explanations" of how works of art came into being?'.

Stratford's useful study of the progress in the study of metalwork is complemented by similar papers on seals and book illumination. Progress in the latter topic provides the basis for some of the stylistic arguments used by other contributors. Archaeologists may gain some comfort from the fact that there has been a 'new' art history!

A number of the papers look at very specific subjects which will not have the same interest to the non-specialist. Thus the Eadwine Psalter, 'Old Conventual Church' at Ely, and Bishop's Chapel at Hereford come in for detailed treatment. The longest paper in the book considers one particular example of the Bestiary. More general topics include the role of musicians in the court, a subject which has no connection with the actual exhibition. Golding's paper is far more fundamental and attempts to discover why Saint Albans was such a great centre of manuscript production. Matthew Paris' history of the abbey is put to good use in reviewing the contributions of the various abbots. Eventually Golding concludes that tax relief from King William played as much a part as the abbots in the prosperity of the abbey.

The final two papers confront the problem of identifying patronage during the Romanesque period. Two particular patrons are considered: Thomas Becket and Henry of Blois. The former appears as an intellectual who loved fine things and 'strove to sponsor beauty and reason combined'. There is a similarity between him

and Henry: both were outspoken individuals. Henry had a grounding in the great monastery at Cluny and learned to appreciate the finer things in life. His own life was to be a constant conflict between destruction and creation. The latter trait is illustrated by his patronage of Glastonbury and the use of Tournai marble.

There are many things that can be criticised about a collection of papers such as this. However, the fact that recent work on the period has seen the light of day is sufficient reason to welcome this volume. The organisers of the exhibition and both symposia should be thanked for setting material and scholarship before the general public. It is to be regretted that the continuing policy of overpricing Society of Antiquaries' publications means that too few would consider purchasing this useful volume.

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MAISELS, Charles Keith *The emergence of civilization: from hunting and gathering to agriculture, cities and the state in the Near East*. London: Routledge, 1990. xx, 395p; figs; maps; tbs. ISBN 0-415-00168-4 £45.00

Dr. Maisels is by training an anthropologist and so brings different and valuable perspectives to bear on some of the most important questions in archaeology. It has often been suggested that archaeology in England has suffered from its divorce from anthropology and books such as this show how stimulating the interaction of the two disciplines can be.

The book is an ambitious and wide-ranging attempt to "reinterpret Near Eastern archaeology". In order to do so this Maisels begins by providing extremely useful critiques of many of the current theories which attempt to explain the emergence of agriculture and the

rise of cities. The discussion on the emergence of agriculture contains some elements of tilting at windmills in its concentration on demolishing the population pressure model of Cohen and others, while paying very little attention to other possible influences such as environmental change. In spite of a detailed chapter on the physical geography of the area, there is no discussion of climatic change other than the bland sentence "... we have noted climatic change in the Near East to have been in the opposite direction to increased aridity on any but the most localised level". The fact that many early agricultural sites are on the margins of ecological zones, in order to give access to a wide variety of natural resources, makes localised fluctuations of great significance.

Maisels' suggestion that simple irrigation agriculture in what he describes as areas with hydromorphic soils, precedes the spread of rainfed agriculture to less favoured parts, is also open to attack. The presence of widespread settlement on the North Mesopotamian steppe at a date long prior to the first evidence for irrigation argues strongly against this idea. (Maisels does note this area as the exception to his remarks, but offers no way of incorporating the facts into his model.) The evidence for irrigation in the Samarra period remains restricted to the channels at Choga Mami, and possibly the ditch at Sawwan, as Helbaek's deductions, based on the size of the flax and cereal grains, are no longer generally accepted. In view of the new evidence for settlement below Ubaid I at Oueili, it begins to look as if the first settlement on the Sumerian plain may be very close in time to the first evidence for irrigation rather than clearly subsequent. The proposal that specialised pastoral nomadism also developed soon after the advent of the first settled villages in the 6th millennium is interesting, but another view is proposed by Zagarell who would place it later, in the Uruk period of the fourth millennium.

In general terms the author is perhaps less happy with the archaeological material than with the theoretical aspects of his discussion. He refers, without further explanation, to the Halaf period as one of agricultural villages and Tell es Sawwan as proto-urban, although they fall within the same timespan and show many of the same characteristics in terms of architectural sophistication, public works, and trading contacts. To derive the Ubaid culture from the Samarran is another statement which needs qualification. There are also one or two minor inaccuracies. The house at Maddhur, which incidentally is misplaced on the map, is not considered by the excavator to have had an upper storey and there is as yet no evidence for a Jamdat Nasr temple at Tell Abu Salabikh. The captions in figures 5.5 and 5.6 are reversed.

The chapters dealing with the development of urbanism in Mesopotamia are stimulating and provocative. Again there are valuable critiques of much of the existing theory and an excellent section on the duties of the king. Maisel's discussion of the role of the private sector of land-holding in the emergence of kingship and of assemblies is the core of the book. The evidence comes in part from anthropological analogy and opens up new perspectives, but the archaeological evidence is somewhat summarily treated and is more difficult to interpret than he suggests.

For example, the T-shaped houses in level III at Tell es Sawwan which the author suggests may be the first example of an *oikiai* (ie an extended family with non-kin dependants) can be equally plausibly interpreted as buildings with a public or workshop area and a private or domestic quarter in the rear. The house at Abada may represent the dwelling of the village headman in which the main hall served the function of an Iwan, and was again a public area, with the side wings being residential. The presence of the EDI compounds at Abu Salabikh is quoted as another example and mention should perhaps have been made of similar compound at Uruk. It is proposed that the earliest 'palaces' in

ED II/III are similar *oikiai* writ large? The theory that the *lugal* emerged from the ranks of the fighting men is a persuasive one, but the most convincing evidence of intercity warfare actually dates to the later ED period when the office of *lugal* was already well attested. Further discussion of archaeological evidence, for example the cemetery evidence from Kheiti Qasim, might have strengthened the case. In the present state of our knowledge we can only guess.

It can also be asked if it is permissible to use textual evidence from Amorite Old Babylonia to make deductions about the organisation of society in the Sumerian periods. It may be argued that society underwent such fundamental changes after the fall of the 3rd Ur dynasty that such evidence can only be used with extreme caution. There is undeniable evidence for the emergence of a number of new social institutions, such as that of the Naditu priestesses, and of changes in the economic sphere, which are peculiar to the Old Babylonian period.

The weight of anthropological facts which are presented, together with a welter of information about the archaeology of China, although of considerable intrinsic interest, do make this book a rather daunting read. The last chapter, however, presents a concise and lucid summary of the conclusions reached. They provide a valuable basis for much future debate and will, no doubt, be hotly contested. Perhaps a further volume will test them in more detail against the archaeological evidence.

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MANNING, W.H. *The fortress excavations, 1972-1974 and minor excavations on the fortress and Flavian fort*; with the assistance of I. R. Scott. Cardiff: Published on behalf of the Board of Celtic Studies of the University of Wales by University of Wales Press, 1989. xxi, 194p; 33p of pls; 76 figs incl. 13 folding plans. (Report on the excavations at Usk, 1965-1976) ISBN 0-7083-1050-8 £30.00

Readers may be familiar with Dr Manning's first report on the fortress at Usk, which dealt with the granaries and defences uncovered between 1968 and 1971, and which was published in 1981. This report deals with the internal buildings and roads uncovered from 1972 to 1974. It is an impressive volume.

There is no finds catalogue since here finds have value only as tools for dating; they will doubtless be dealt with in due course. The principal phases represented are the legionary fortress (c. AD55-75) and the mid-Flavian fort which succeeded it, becoming redundant by the end of the first century. There are discussions on the plan of the fortress (Chapter 12) and on the nature of its buildings (Chapter 7). There are plans of insular, continental and Mediterranean peers, such as Chester, Haltern, and Lambaesis. All of this is carried out very well. Descriptions of layers and features are thorough; the figures are clearly drawn; the photographs are models of clarity. Clearly an awful lot of hard work went into the excavation.

There is not much to quibble about in the report; the evidence is solid; the interpretation good; the presentation scrupulous. Until all the volumes are published, final judgement must be withheld. Personally your reviewer would have liked to know more about the plan of the Flavian fort, as well as the fragment of bath-house (Chapters 8 and 13), and so too would Dr Manning. Circumstances which were not the excavator's fault meant that only a limited

amount of work could be done. It is hoped that these matters are now on the agenda should the need for future rescue work arise.

It would perhaps be worthwhile putting a chronological table in some future volume. Other than that, and the impression that this volume is perhaps a trifle wordy, this reviewer's impressions are wholly favourable. It should stand for long as an inspiration to those who are reduced to digging or interpreting small trenches. The message from the excavators of the 1970s - think big - is here writ large.

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MATOS MOCTEZUMA, Edwardo *The Great Temple of the Aztecs: treasures of Tenochtitlan*; translated from the Spanish by Doris Heyden. London: Thames & Hudson, 1988. 192p; 133 illus (b & w); 23 pls (col). (New aspects of antiquity) ISBN 0-500-39024-x £24.00

Among other subjects this book summarizes the result of the excavations in Mexico City of the Great Temple of the Aztecs - their most important temple. The book is written by the Director of the Great Temple Project and comprises seven chapters, some setting out problems and some contributing to their solution. In Chapter 2, "The Aztecs in History", Matos mentions that history and myth suggest that, around AD 1000, the Aztecs left a place called Aztlan, their island homeland, and began to wander toward the Valley of Mexico. The date 1000 for the Aztecs' departure from Aztlan is indeed an early one. Davies (1977 : 8) for example quotes ca. AD 1111 for the same event.

In his introduction to the book, Matos says (p. 10) that he makes no apology for quoting extensively from the invaluable material written

by the chroniclers of sixteenth century Mexico. Matos quotes Duran more than any other chronicler and one wonders whether Matos considers him the most authoritative sixteenth century chronicler. Otherwise, what makes him first choice? On page 83 he says "Sections of stairway alternating with fragments of balustrade form the eastern limit of the ceremonial precinct, a boundary device similar to that found at Tlatelolco: this archaeological discovery, however, contradicts some of the chroniclers who claimed that a wall in the form of serpents encircled the precinct!! If not apologise, he should say here that the chroniclers' writings are important but not always truthful.

There are problems of interpretation. For instance, Matos quotes Duran (p. 60); but just because the chronicler says that there was a green stone in front of the shrines of Huitzilopochtli and Tlaloc it does not mean that this was true. But having accepted Duran's statement on trust, Matos goes on to suggest a place from where "the semi-precious stone was brought". In Matos' (p. 66) own words:

"This semi-precious stone used during the Temple's latest period was brought as tribute payment from areas in the present-day state of Guerrero, where it is very common."

How do we know that it existed in the first place, and is Guerrero the only place from which the stone could have come?

According to Matos, there are seven stages of construction at the Great Temple (p. 60). He has been severely criticized by Graulich (1988), Vega (1989), Davies (1987) and others about this classification. Matos' constructional stages seem to be quite arbitrary and no doubt he will have to refine them sooner or later.

The results from and interpretations of the Great Temple are dealt with on p. 62. Matos says that it appeared that the Great Temple had been built in seven stages, several of which could be tentatively dated by the glyphs found carved on excavated objects. He then goes on to describe the stone cartouches attached to the structures of the Great Temple, e.g. the date glyph 4 Reed inscribed on the back wall of the pyramidal base of the Great Temple. He refers

specifically to architectural plaques with carved dates, not objects. On page 73, Matos describes Construction Stage IV, and mentions that some "over-sized" braziers on the south side of the temple prominently display a large bow which is believed to be a symbol of the deity (*see also* p. 97). Who believes these to be Huitzilopochtli's symbols? Archaeology is about facts, not beliefs. One main criticism is that there are many ill-founded interpretations throughout the text - especially about the objects and their symbolism. There is not sufficient proof or basis for his suggestions.

Another weak interpretation can be found in the description of Temple C (p. 78). "The side walls are decorated with *chalchihuitl*, modelled and painted red rings which represent water, symbolizing something precious". Symbolizing something precious or the preciousness of water - and how do we know this in this context? There is no question about the *chalchihuitl* symbolism. How do we know that in this instance the red colour represents water and not blood?

Chapter four, 'Treasures from the Great Temple' deals with the offerings found there. It is, in your reviewer's opinion, one of the best chapters of the book. It covers the arrangement and contents of several offerings, as well as the regions where the objects may have come from. Most objects, according to Matos, are from tribute-paying areas, but he explains later that "these artifacts were not all necessarily the result of tribute: it may be that some items were acquired through trade or ceremonial exchange between rulers" (p. 102). He says (p. 111) that a number of stone sculptures (measuring about 10cms) representing Tlaloc are believed to have been *penates* or household gods. Clearly, at the Great Temple these small objects had not functioned as *penates* but were only smaller versions of deities. The reader (especially the archaeologist) would have liked to learn something about the floral remains. There is a small section covering the faunal remains but none on the floral. This seems to be a constant deficiency in Mexcian archaeology.

Matos fails to mention some obvious things. For instance, the two frogs perched on the north side of the Temple have holes in their backs. From other sculptures, we know that these could have held standards or flags. Unfortunately, the original Spanish text has been translated too literally into English, this can lead to inaccuracies for the reader. The book is well written both for the general public and for the specialist, and it does justify the 5 years of excavation that have no doubt shed so much light on the culture of the Aztecs. The difficulty of excavating in the middle of Mexico City in what was formerly a lake attest to the quality of Mexican archaeology as a whole. Matos is no doubt excellent at the practical side of archaeology: but on the theoretical side remains to be seen. All in all, the book is probably the best of its kind despite the many variations on the theme that the author has written since the project began.

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MEE, C. *Rhodes in the Bronze Age: an archaeological survey*. Warminster: Aris & Phillips, 1982. 149p; 41pls; 8 tpls; 3 maps. ISBN 0-85668-143-1 £24.00

This book is based upon the author's doctoral dissertation. After a short introduction, he

examines the Rhodian Bronze Age material arranged according to site. Conclusions and a historical reconstruction of the Early, Middle and Late Bronze Age in Rhodes follow. The book concludes with notes, bibliography, catalogue of pottery, tables of pottery shapes and patterns, 41 plates and 3 maps and plans.

The settlement of Trianda and the tombs at Ialysos are best known among the Rhodian sites. The Trianda settlement has been excavated by Monaco in 1935 and its material has been reconsidered by Furumark in 1950. Mee offers a summary of the work of Monaco and Furumark without reexamining the material itself.

The two large cemeteries excavated at Ialysos have produced an impressive body of pottery dating from LH II B to LH III C and the author has made a thorough typological analysis of this material. Apollakia and Vathy have also produced considerable quantities of pottery, whilst the rest of the sites mentioned have been less prolific. Finally, the conclusions are arranged by period. The results derived from the study of the Rhodian pottery are combined in an effort to compose a coherent picture of the Mycenaean occupation of Rhodes and general historical developments in the eastern Mediterranean.

This is a valuable book which will be used in the years to come by the students of the area and period. Whilst not detracting from the value of the book, there are one or two problems. For example, much effort is required on the part of the reader with the identification of the vases numbered in the book, especially as much of the material, particularly that from private collections, is not illustrated. Although book costs have risen dramatically in recent years, such important material merited more profuse illustration, which would have made the Rhodian pottery more readily accessible.

Rhodes in the Bronze Age seems to have been submitted for publication in 1979 (cf. p. 2). At about the same time, the reviewer's book on the LM III period in Crete was finished. It included an examination of LM III C stirrup jars from Rhodes and neighbouring islands. It is interesting to compare how the same material has been

treated independently by two different scholars. The Minoan character of the III C octopus stirrup jars is recognized by both Mee and Kanta. However, it is disappointing to see that this material and its significance is not used in the conclusions and historical reconstruction of the period by Mee.

Small details apart, this is a very useful book and a must for all libraries specializing in Greek Prehistory.

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MILLER, Mary Ellen *The art of Mesoamerica: from Olmec to Aztec*. London: Thames & Hudson, 1986. 240p; illus (some col.) (World of Art) ISBN 0-500-20203-6 £4.50

This richly illustrated book, modest in price and size, is intended, Miller writes in the preface, as "a general introduction to the history of Mesoamerican art and architecture for the student or traveller." It covers 3000 years, from the first monumental architecture and recognizable art style of the Olmec (suggesting as organized social system to produce them), to the demise of Aztec culture with the Spanish Conquest. This is an enormous amount of material to be covered, and important chunks are missing. One suspects that Miller was given proscribed dimensions of the book to be written - number of words, illustrations and so forth - and she simply could not shoe-horn all of the available material into such a small space. That is the problem of compressing into a slim volume even this "representative selection" of Mesoamerican art and architecture. There's too much of it.

The geographical area of Mesoamerica is roughly the southern two-thirds of Mexico, Guatemala, Belize, El Salvador, and eastern Honduras. Miller follows a chronological format

through the three major Mesoamerican culture sequences: Formative (1500-100 BC), Classic (100 BC - AD900), and Postclassic (AD 900-1519), emphasizing that these terms denote chronological stages rather than imply value judgements. The art of Mesoamerica ranges from the minute and detailed (carved jadeite, shell, gold jewellery wrought by the lost wax process, feather work, and finely painted pottery), to the monumentally grand (pyramids, complex architecture, and carved stones weighing several tons). The sheer magnitude of the latter accomplishments is astonishing given the lack of metal tools and draft animals.

Beyond descriptions, Miller provides background to the sites and artifacts with comments on the diversity of topography and climate, the basics of writing and calendrical systems, and adds some information on explorations, excavations and studies. The book is unbalanced in its coverage, but Miller is to be congratulated for a courageous attempt.

One cannot complain that the Maya culture, Miller's speciality, received more than its fair share of space, but the north and west of Mesoamerica are almost ignored. For example, despite her disclaimer that "the history of ancient West Mexico is in many ways one of separate development from the rest of Mesoamerica," the Postclassic Tarascans of Michoacan deserve more than an off-hand mention. Their pyramids were large and grand, their jewellery and pottery were intricately worked, and their society sufficiently well-organized to have fought off the Aztecs' most determined attempts to incorporate Tarascan lands into the tribute-paying fold. To the north, the sites of La Quemada and Chalchahuities could have been included; although on the northern frontier, both are part of Mesoamerica, with art and architecture worthy of consideration in any overview. Surprisingly, the Mixtecs, contributors of a highly refined painting style, receive relatively little attention.

Miller has illustrated several examples of finely worked objects - stelae, murals, pottery and the painted books. It is a disappointment

that so few are in colour and that detail is lost in the muddy reproduction of some black and white photographs. Of the twenty colour illustrations (21 including the cover of the book), fifteen are photographs of architecture or stone sculpture which would not have suffered if shown in black and white.

There is only one map, and even though it is double-page width, it is inadequate to include all the places mentioned. At least one presumes so, because not all places names in the text are shown on the map, and there is a serious lack of important rivers. A few regional maps would have made the text easier to follow, but would have added to the cost. Again, the problem is the size of the book, limited space, and probably a price ceiling.

Despite the flaws, Miller has produced a handy little book that can be accommodated by the purse of the limited-budget student and the rucksack of the limited-baggage traveller.

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NEEDHAM, Joseph. *Science and civilisation in China, vol. 5: Chemistry and chemical technology. Pt. 1: Paper and printing*, by Tsien Tsuin-hsuei. Cambridge: Cambridge University Press, 1985. xxv, 485p; illus. ISBN 0-521-08690-6 £45.00

In 1393 the Bureau of Imperial Supplies manufactured 720,000 sheets of toilet paper two by three feet in size for the general use of the court, and 15,000 sheets three inches square, of light yellow, thick but soft and perfumed paper for special supply to the Imperial family.

Official portraits were printed of the top twenty nine candidates of the Civil Service examinations between 1436 and 1521.

These two totally unrelated snippets come from this book and seem both to sum up the Chinese achievement of reaching banal mass civilisation several centuries ahead of the rest of us and also recording it so meticulously, usually on paper. It is this chronic mania for records that makes China by far and away the most documented nation on earth. Whether the recording, regulating, instructing, instincts of the Chinese bureaucracy necessitated the invention of paper and then printing or whether these early inventions bred bad habits into the Chinese is a moot point; and having been mooted in this book, it is still not at all clear. Let it be stated straight away that for better or worse this book does not follow the Needham pattern where the party line is firmly laid down and strictly adhered to through the work. Here there are likely to be a number of approaches to a given subject from a variety of standpoints and where conclusions are reached, they can sometimes seem to be at variance with one another.

Joseph Needham, recognising that even he is mortal, is gradually relinquishing the remaining volumes in the *Science and Civilisation in China* series to other authors, and this was the first to have been written wholly by another scholar. This is not to say that Needham has relinquished control completely, far from it. In the introduction he gives the familiar Needham diffusionist line that A) it began in China, and B) all subsequent appearance of the particular technique or material elsewhere can be traced back to China.

In this instance there can be no serious doubt that both paper and printing began in China and profoundly influenced developments elsewhere, although the influence of China on later European printing is not as clearly established as one could have wished.

In the author's own words the book 'consists of ten sections, with a bibliography of nearly 2,000 entries and about 200 plates and figures for illustration. Three sections each deal separately with paper, printing (including inkmaking and book binding), and their worldwide spread and influence, in addition to

an Introduction as a summary and orientation. The last section on the contribution of paper and printing to World civilisation serves as a conclusion. Each part on paper and printing is treated both chronologically and topically.'

This approach necessitates a good deal of repetition, and even accepting that most users of this reference work are going to read specific sections rather than reading the whole book at one go, it does seem that more extensive cross referencing could have cut down the whole text quite considerably. One of the chief problems using this book is the treatment of the same subject from several different angles, especially where they seem almost to have been written without reference and sometimes apparently at variance with each other, at least in emphasis. Thus for example on page 54 we are told that "The reason why it (hemp) was the first material used in papermaking was the discovery that a sheet of hemp and similar fibres drained on a mat gave paper "i.e. raw fibres formed the first paper", but tackling the same question from a different viewpoint on page 37, we learn that "the use (of raw hemp) is likely to have evolved from that of rags of hemp or silk" i.e. rag paper was first. Also on page 37 it states "Indeed it is generally known that silk cloth had long been used for writing before it was replaced by a thin sheet of refuse fibres which were obtained either from the remnants from boiling silk cocoons or by boiling rags in water." i.e. silk was used, but then on page 63 it queries "whether silk has ever been used as a raw material for papermaking is uncertain, mention of the use of silk fibres is based primarily upon speculation" i.e. no evidence that silk was used. One begins to suspect that some of these sections were written at widely separate intervals.

Another problem with this compartmentalised method of treating the material is the lack of interactive debate. For example in the section on papermaking methods, the change from the use of cloth moulds to bamboo screens is described, and in the section on the raw materials, the change over from rag

cloth to hemp cloth is described, probably taking place at about the same time. Could the change in raw material have been responsible for the change in method? But the two changes are catalogued in their respective sections without even a cross reference.

These problems in presentation must not detract from the overall value of the book which contains well informed, extensively researched and referenced information on every aspect of paper in China, and much very interesting speculation on how and why paper and printing developed there so precociously. Skins or papyrus never seem to have been popular in China but paper was being made over 2,000 years ago and was soon the usual material for writing upon. A possible explanation is familiarity with felting technology, both the wool felt cloths of central and east Asia, and also the felted bark cloths of the Pacific. China was the one place where these technologies were in a literate society that needed something cheap to write upon.

Despite the vast amount of erudition, the work still disappoints in some ways. Perhaps this is because when all is said and done the basic technologies of paper making and printing are fairly simple, although their social and economic impact has been immense. Thus in some places the work is a rather unhappy mixture of art, literature, history and technology, going rather half-heartedly down several paths. Thus the impact of printing on Western civilisation gets two pages, and in those two pages deals with the Renaissance, the Reformation and the rise of popular literature. Inevitably the result is simplistic in the extreme, but should these broader themes have been attempted at all? Unfortunately this brevity can sometimes extend to the technology itself, especially in the field of printing. Thus on page 269 we are told that in "The four decades from the beginning of the 17th century through to the end of the dynasty in 1644 produced the greatest number of woodcuts, introducing new techniques which led to new refinements of the art." What new refinements?

Technical information such as this should have been the central theme of the section on printing even at the expense of discussion of what was printed. Similarly the comparisons and parallels between East and West could have been taken further especially in the fields of European colour printing. The Chinese method of building up multi-coloured prints from a series of wood blocks each inked with one colour seems remarkably similar to European developments culminating in the obsessive perfection of George Baxter in 19th century England. This would seem a much more appropriate comparison for the Chinese colour prints than with the modern European photo-mechanical processes.

Because this book is in the *Science and Civilisation in China* series this review has tended to take its strengths for granted and to concentrate on what are relatively minor problems of presentation and content. Taken overall this is a major work of scholarship and detailed exposition on a generous scale well backed up by carefully chosen illustrations.

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NITECKI, Matthew H. and NITECKI, Doris V. (eds.) *The evolution of human hunting: [proceedings of the Field Museum of Natural History ninth annual Spring Systematics Symposium on the Evolution of Human Hunting, Chicago, Illinois, May 10 1986]*. New York: Plenum Press, 1988. vii, 464p; illus. ISBN 0-306-42821-0 \$75.00

An important aspect of palaeoanthropological research is the subject of this volume of papers from nine eminent scholars (e.g. R. Klein, L. Binford and E. Trinkaus, to name the first three); the occasion was the Ninth Annual Spring Systematics Symposium, held in 1986 at the Field Museum of Natural History, Chicago. A

tenth paper, by the first editor, preceeds the others of which it is a kind of synthesis. He reminds us of the definition of 'hunting': human activity designed to procure animals and their products (meat, hide, bone, sinew), as against 'scavenging' of carcasses, foraging for shellfish, eggs, etc., or gathering of plant foods.

The initial papers address the question of early hominid diet: when did it change (if it did) from being herbivorous to carnivorous or omnivorous, and exactly which human types were the first hunters? R. G. Klein argues that there is good evidence for big game hunting from the time of the emergence of modern man in the Late Pleistocene, before which the evidence is ambivalent, either because it is lost or because pre-*Homo erectus* man was not an efficient or systematic hunter. The Torralba/Ambrona and African cave Acheuleans could have been at least partly responsible for the unusual faunal bone accumulations, associated with stone butchering tools, whether or not they killed the game themselves. Binford, in contrast, contemptuously rejects the views of Howell and Freeman concerning the Torralba 'Elephant Hunters' (a theme which he has already discussed elsewhere), using statistical analysis of the skeletal elements at the site. For him, *Homo erectus* was not a hunter and, unless a more careful study of the archaeological remains shows otherwise, their disposition should be attributed to natural agencies.

E. Trinkaus goes further and proposes, on the basis of detailed study of functional anatomy and its evolution from the Australopithecines onwards, that although the genus *Homo* had the physical potential to be a predator, efficient hunting is the characteristic, not even of the Neanderthals but of modern man, *Homo sapiens sapiens*.

The hunting practises of these modern humans are examined in the next four papers, by G. Frisson, D. Fisher, L. Todd and L. Straus. The latter studies the Magdalennian faunal remains and ecological indicators from Western Europe and deduces the use of a wide range of

specialised mass hunting techniques, implying co-operative behaviour and thus social sophistication. The Clovis culture of North America and its hunting techniques are described by Frisson, who brings in personal experience and ethnographic evidence from modern African hunting. Fisher and Todd are concerned with the Mastodon remains in the Great Lakes region and the bone-beds of the High Plains Paleoindian groups.

A. Behrensmeyer's paper deals with the crucial question of taphonomy, and its strengths and weaknesses as an interpretive tool, while that of R. Morlan reviews the evidence as to how and when man spread across the Bering Straight into the New World; that it was accomplished at all represents a remarkable feat, doubtless due to technological innovations of animal food procurement methods.

These absorbing contributions are well illustrated, the volume is solidly bound and it has a comprehensive index.

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PADDAYYA, K. *The new archaeology and aftermath: a view from outside the Anglo-American world.* Pune: Ravish, 1990. [10], 71p. [price not given]

This book is a discussion of recent trends in Anglo-American theoretical archaeology, as viewed from the Indian sub-continent. It will, I am sure, be popular with students since, unlike many contributions to the New Archaeology vs. Post-Positivism debate, it is short, concise and very readable. The style is polemical and in places deliberately provocative (Ian Hodder, for example, is accused of "Archaeological McCarthyism"!), and this can only add to its appeal. Paddayya sets out to defend the New Archaeology against its "Post-Positivist" or

"Post-Processual" critics. Like a first class defence lawyer, he presents his case clearly and elegantly, but like a lawyer, he glosses over details which do not support his case.

The book has only three chapters. In the first chapter, Paddayya identifies a series of "misconceptions" about the New Archaeology. He successfully cuts through much of the jargon and confusion that often stultifies this debate, identifying the principal methodological and theoretical tenets of the New Archaeology (the emphasis on hypothesis testing and the structural-functional view of human society). In the second chapter he looks at the "ideational trends" which have developed in opposition to the New Archaeology. Once again, he strips away much of the confusion to identify key issues, but he then uses the classic defence lawyer's strategy of trying to break down the key "prosecution witness" (in this case Ian Hodder). It is difficult to avoid the conclusion that he is setting up a straw man to be knocked down: Neo-Marxist approaches are glossed over in a sentence, claiming that they share most of the New Archaeology's basic premises" (your reviewer doubts if Binford would agree!), and the Post-Positivist" critique is presented as a heroic (if misguided) one man attack by Hodder, a lone voice crying in the wilderness, "seeing monsters where they are not there" and promoting a "post-colonial philosophy of resentment". The final chapter was, for your reviewer the most interesting, looking at the application of theoretical approaches within Indian archaeology and summarising works by Sankalia, Chakrabarth, Dhavalikar and Paddayya himself, which are rarely discussed in the western literature.

This book cannot be seen in any sense as a defensive statement of the current theoretical debate: it is polemical, emotional and openly one-sided. Paddayya begins by claiming that the New Archaeology has been misrepresented or misunderstood by its critics, but he himself then proceeds shamelessly to misrepresent the critique. He concludes that New Archaeology is

still the dominant trend in archaeological theory, and that Post-Positivism" does not offer a new framework, but merely a critique: none of these "ideational trends" could in his view have "come up directly on the layer formed by traditional archaeology", and he accuses them of foraging on the harvest put together by the New Archaeology". This may well be true, but is this not the way in which all academic progress occurs? Surely the New Archaeology began as a critique of traditional archaeology "foraging", to a large extent, on its "harvest"?

This is, above all, a book to be read and debated. Your reviewer disagrees with much of what is said, but certainly did not find it boring. He has little doubt that it will find its way onto student reading lists, and if, as he suspect sit will, it promotes a livelier debate in seminars and tutorials, this would certainly be no bad thing.

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PELTENBURG, Edgar J. (ed.) *Early society in Cyprus*. Edinburgh: Edinburgh University Press, 1989. xiii, 404p; illus; map on endpapers. ISBN 0-85224-633-1 £30.00

This volume offers a valuable and interesting spectrum of approaches to and syntheses of Cypriot archaeology from the Aceramic Neolithic up to and including the Roman period. These papers were originally presented to a conference of the same title in Edinburgh in 1988.

The volume has been well edited with a useful index. Rare errors include the occasional failure to insert internal page references (p. 303). In terms of broader editorial policy this reviewer feels that there was only one important failing. This concerns the presentation of radiocarbon dates; there appears to have been no consistent policy for contributors to indicate whether dates are calibrated or uncalibrated,

despite the impression created by the chronological table at the beginning. This could create problems for the unwary, or those approaching the volume to get an overview of current Cypriot archaeology, especially where historical chronologies are mixing with radiocarbon chronologies. For example, the chronological table at the beginning suggests that b.c. would be preferred for uncalibrated C14 dates. But Todd (pp. 3 and 8) and Christou (p. 88) refer to what must be uncalibrated C14 dates (although they do not state this) as B.C., whilst Muhly presents dates as uncalibrated dates B.P. If the uninformed reader working on adjacent areas were interested in comparing the contemporary situation in Cyprus with that in his own area it might be difficult for him to know where he stood.

It seems appropriate to review the contribution on two broad lines. The volume is organised thematically, thereby inducing interest in the sort of approaches adopted to common questions of interpretation, independent of period. Systematic methodologies for the interpretation as specific areas of archaeological data are not well represented in these papers, nor does there seem much agreement on common approaches. It is interesting, for example, to observe the manner in which Muhly and South can draw apparently contradictory conclusions from the same available evidence. Thus South suggests the possibility of a unified state in Cyprus in LCIIIC (p. 322), whereas Muhly suggests the predominance of one centre before 1300 B.C. (historical date) and the decline of such a centre after that (pp. 302-303).

That is not to say that there are no common approaches, or that there is a lack of approaches of interest. For example, accounts of settlement evidence involve attempts to reconstruct room and structure function (Hadjisavvas, Swiny, Cadogan and South for Bronze Age settlement evidence, but it is also touched upon by Peltenberg for pre-Bronze Age periods). Problems with these approaches arise in distinguishing between those objects related

and those unrelated to the primary function of an architectural unit, appreciated for the most part by the authors themselves.

There are two interesting attempts to enter into the structure of ancient symbolism. Peltenberg discusses a series of figures of pre-Bronze Age periods and attempts to interpret them through their contexts. His identification of cult cultures (p. 122) may be problematic but the point is that it is most likely to be questioned using the same avenues of inference that he himself has mapped. Perhaps even more significant is the highly systematic and balanced approach taken by Linda Carless Hulin to the identification of cult figures. This includes broad contextual considerations, but uses to good effect the appreciation that artifacts encode several different sorts of informations and behaviour; she thereby escapes the claims and counter-claims of particular cultural affiliation and identity for such figures.

Regionalism and cultural areas are dealt with by Bolger where however, a useful historiographical introduction does not contribute significantly to the actual discussion in which she engages.

Rupp explicates effectively the assumptions underlying the identification of status and social hierarchies, particularly as they might be reflected in or affected by the burial record. While his assumption that the 'value' of objects as status symbols is manipulable by an elite (p. 337) is comfortable for his analysis, it is not incontestable. Rupp gives the transformations of the burial record due weight and his exploration of patterning in the data is highly effective, giving some credence to his weighting of different components of material culture as expressing status. The inclusion of multiple burials in his data set is a matter for concern, however.

The volume can also be reviewed in terms of its contribution to our understanding of the different periods of Cypriot archaeology. Pre-Bronze Age prehistory is well treated. Todd highlights a key question of the nature and

significance of the apparent discontinuities in the Cypriot prehistoric record through his account of settlement in the Vasilikos valley from the aceramic Neolithic to the end of the Chalcolithic. Peltenberg touches on the fundamental question of the nature of beliefs in the supernatural in prehistoric Cyprus, long in need of such a systematic and questioning approach. Domurad's study of the physical anthropology of Cypriot prehistoric populations promises to yield some interesting answers about the affinities and therefore possible place(s) of origin of Cypriot populations. LeBrun provides a systematic, useful and interesting account of mortuary data from aceramic Khirokitia. A detailed account of the important evidence from the Chalcolithic cemetery of Souskiou Vathykakas is provided by Christou. Bolger's analysis of inter-site variation in ceramics in the west in the Late Neolithic and Chalcolithic, although preliminary, will clearly foreshadow further such studies.

For the Early and Middle Cypriot periods Stuart Swiny provides an admirably complete and balanced survey of the evidence. Bronze Age metallurgy, mainly of the Late Cypriot period is touched on by several contributors. Muhly gives a very valuable overview of the evidence for the organisation of the industry; it is encouraging that all contributors who feature metallurgy in their papers touch on the interestingly varied contextual circumstances of the occurrence of the evidence for metallurgical activity. At this juncture it is most pertinent to mention Cadogan's cautions about focussing on metallurgy as an underlying factor in the explanation of all phenomena in Bronze Age Cyprus; by analogy with Crete he points out the importance of their storage and distribution of products of the land (p. 50). Interest in the Iron Age centres on status/social stratification, kingship, differing ethnic contributions to culture and religion; the evidence is provided by limited texts, burials and sculpture. Rupp points out the recent nature of the interest in Iron Age settlement (p. 344) which has

obviously, from this volume, yet to have a major impact on interpretation of the archaeology of Iron Age Cyprus.

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PINSKY, Valerie and WYLIE, Alison (eds.)
Critical traditions in contemporary archaeology: essays in the philosophy, history and socio-politics of archaeology.
Cambridge: Cambridge University Press, 1990. ix, 160p; illus. (New directions in archaeology) ISBN0-521-32109-3 £27.50

In 1973, David Clarke proclaimed the "loss of innocence" in archaeology, involving the development of "critical self-consciousness." Essentially, this involved archaeologists in a debate concerning the philosophy, theory and methodology of the discipline, issues that had previously been seen as unproblematic. Since then the word "critical" has acquired a more specific meaning in archaeological discourse, linked to the application of "critical theory" and the philosophy of the Frankfurt School, concerned with "deconstructing" the ideological basis of scientific practice.

This book looks at "critical traditions" in the broadest sense, and is divided into three distinct sections. The first section, entitled "Philosophical Analysis", looks at the ontology and epistemology of archaeology in a very general sense: the scope is wide, with a variety of approaches ranging from Rationalist (Hanan & Kelley) to Realist (Wylie) and Neo-Marxist (Saitta) traditions, but the papers are linked by a common recognition of the inadequacies of strict Empiricist approaches. The second section, entitled "Historical Foundations", is an attempt to develop a critical historiography of archaeology: following Kuhn, the authors argue that historiography must be understood in socio-

historical context, and this is illustrated with case-studies looking at the history of ancient monuments legislation in Britain (Murray) and at the relationships between Childe's archaeology and his political involvement (Gathercole). Chippindale adopts a rather different perspective in looking at the history of Stonehenge studies, arguing for a continuity of archaeological methods (as distinct from techniques) from the Renaissance to the present day. The final section, "Socio-Political Context", looks at the political dimension of archaeological discourse, and is directly inspired by the "Critical Theory" of the Frankfurt School. Gero looks at a struggle in America between professional archaeologists and amateurs of the "New Diffusionist" camp, over "control of the past" and the "right to interpret it"; while Handsman & Leone focus on the way in which an ideology of individualism, obscuring class relations, is constituted in museum displays of historical archaeology. Tilley begins with a succinct summary of the iniquities of international capitalism, and argues that archaeology frequently sustains rather than challenges this established social order. He goes on to develop a seven point "programme for action", redefining archaeology as a strategic revolutionary intervention in the present.

Any of the three distinct topics discussed in this book (the ontology and epistemology of archaeology; the development of a critical historiography; the socio-politics of archaeological discourse) would surely have merited a volume of its own, and the individual sections in this book are too short to do real justice to what are, after all, three of the most important issues in current archaeological debate. The book also appears somewhat disjointed, consisting as it does of three separate "pamphlets", each with its own theme, introduction and conclusions, and linked to one another only by the broadest notion of a "critical" debate (i.e. a reflection on archaeological theory, philosophy and methodology).

This is a book which poses more questions than it answers, and which defines areas for future research rather than presenting a coherent approach. Some of the papers are extremely challenging, presenting questions, some of them uncomfortable ones, which archaeology cannot afford to ignore. This is particularly the case with the papers in the final section: if we abandon rigid Empiricism and its ideal of "value-free" knowledge, and if we recognise that interpretations of the past are not politically neutral, what are the implications of this in terms of archaeological practice? At the moment, these questions are addressed mainly at the introspective level of "meta-archaeology" (i.e. in discussions of archaeological theory and method rather than in archaeological practice, cf. Embree's paper), and the challenge for the future is to apply these approaches to archaeological data; for as Zubrow argues in his succinct commentary on the first section of the book, "The real goal of archaeology is to discover and understand the past, not to discover and understand archaeology and archaeologists".

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POPHAM, M.R. *The Minoan unexplored mansion at Knossos*, by M. R. Popham; with J. H. Betts [et al]. London: The British School of Archaeology at Athens; Thames and Hudson, 1984. 2 vols. (Vol. 1: Text: [13], 310p; 16 figs; Vol. 2: Plates: viii; 233pls; 1 map.) (Papers of the British School at Athens, supplementary volume, 17) ISBN x-28-017662-6 Vol. 1: £35.00; vol 2: £45.00

The Minoan Unexplored Mansion, which still bears its now obsolete name, was known by Evans to be sited behind the Little Palace, which is to the N.W. of the Palace of Knossos. Little

more was known of this site until its excavation was begun in 1967 by the British School at Athens under the direction of Mr. M. R. Popham and Mr. L. H. Sackett. The excavation was completed by 1973 with a short additional season in 1977. The subsequent publication of the 2 volumes of this work enable us to study a modern excavation of a Minoan building, without the shortcomings of the now dated and controversial methods of Evans' excavations at Knossos. Thus the Minoan Unexplored Mansion, now explored, gives a clear stratigraphic view of an excavation in the Knossos area covering the Late Minoan period.

The work is comprised of two volumes, the text and the plates. There are 233 black and white plates and 16 figures in the text as well. The text comprises 310 pages and is divided into specialist chapters by contributors on the subject-matters of architecture (D. Smyth), frescoes (M. Cameron), sealstones (J. H. Betts), terracotta figurines (R.A. Higgins), bronzes and metal-working equipment (H.W. and E. Catling), and other finds (D. Evelyn). There are also 3 appendices on plant remains and bones, both animal and human. The chapters on the excavation and pottery, as well as the summary and conclusion are written by the director of the excavation Mr. M. R. Popham. Each chapter is accompanied by copious notes and bibliographical references. An interesting preliminary report of the excavations from 1967-1972 is to be found in Archaeological reports for 1972-73 [of the Hellenic Society and the British School at Athens], which serves as a good general introduction to the material presented in the Minoan Unexplored Mansion.

It is clear from the publication that the excavators were able to identify major deposits from the LMII and LMIIIB periods and minor deposits from the LMIIIA1 and LMIIIA2 periods. Thus Mr. Popham is able, in Chapter 2, to discuss the characteristic pottery of each phase. This and related arguments which he has presented elsewhere are a concise review of pottery styles which go some way to clarifying the ceramic chronology laid down by Evans.

Thus, through this work, we can observe the occupation from the LMII period down to the LMIIIB period when it was finally abandoned. The arguments about pottery and chronology have been heard many times, and the date of the destruction of Knossos is still a subject of debate for some. The evidence has been discussed many times and scholars have drawn their own conclusions. Here we can look at the Minoan Unexplored Mansion, outside the Palace of Knossos, in its successive phases.

Your reviewer will now return to the subject of literacy and administration in the Minoan Unexplored Mansion. For we can witness the successive stages of literacy at Knossos from the LMI (LMII?) Linear A of the 2nd Palace period, through the Linear B tablets of the LMIIIA1 mono-palatial period, to the Inscribed Stirrup Jars (ISJs) of LMIIIB so-called post-palatial period.

Firstly the inscribed jar with a Linear A inscription KN Zb 40 (GORILA 4 p. 83) is dated to LMII, the first destruction phase of the Mansion, but it is probable that the Mansion began to be constructed in LMIA and that the jar may date from that period. This is likely as Linear A is not otherwise attested after LMIB. Indeed another Knossos inscription in Linear A, KN Zb 35 (GORILA 4 p. 81) on a pithos from the medallion pithoi magazine, was probably written in LMI but remained in use beyond that period. But with KN Zb 40 we have evidence of literacy and the accompanying administration in the first stages of the Minoan Unexplored Mansion, and the inscription reads 08-03-67-10-06-08 which if read with the value of Linear B homomorphs would give a-pa-ki-u-na-a.

Our next evidence of literacy is a fragment of a Linear B tablet X 8833 (MUM p. 252-3; pl. 223b, 232.28) from an undated context. This must be contemporary with the archive of the palace of Knossos and it is thought that this tablet is a stray from that archive, perhaps from the adjacent Little Palace which produced 15 tablets. The MUM tablet preserves the signs]te-ja which would suggest the end of a textile tablet. So far it has not been possible to join the

MUM fragment to another tablet. It is just possible that the tablet should be inverted and read as]ja-te, for the remaining traces of the linear signs do not rule out this possibility. However, the presence of a tablet indicates continuing literacy and administration in the vicinity of the Unexplored Mansion.

Finally, we have a Linear B inscription (KN Z1716) on an Inscribed Stirrup Jar from an LMIIIB context. The inscription reads wi-na-jo. This is the second ISJ from and LMIIIB context at Knossos, whereas most of the vessels of this category on Crete are from Chania, 25 to date. Thus there was continuing literacy, and we can assume administration as well, down into the LMIIIB period.

Thus the Minoan Unexplored Mansion reveals a great deal about the situation at Knossos; and a clear and detailed publication such as this is a fitting presentation of the results of a modern excavation. Archaeology at Knossos has progressed a lot since the excavations of Evans at the turn of the century, and the modern methods used in the excavation of the Minoan Unexplored Mansion are displayed in this publication. This detailed and informative work is a scholarly and attractive publication.

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RENFREW, Colin and WAGSTAFF, Malcolm
(eds.) *An island polity: the archaeology of exploitation in Melos*. Cambridge: Cambridge University Press, 1982. xiv, 361pp; illus. ISBN 0-521-23785-8 £35.00

This book provides a thorough interdisciplinary, environmental and archaeological study of the Greek island of Melos, where C. Renfrew re-excavated the site of Phylakopi, an old excavation of the British School of Archaeology at Athens.

An introductory theoretical approach is followed by individual studies by many scholars under the general headings of: History of society in Melos, environmental system and constraints, intra-systemic relations, inter-systemic relations, integration and various appendices.

Every aspect of human habitation in Melos comes under close scrutiny in this admirable work. Site distribution, topography, island resources, traditional land use, settlement and population change, agriculture, animal husbandry, obsidian trade are some of the topics studied. Thus, a variety of perspectives is brought to bear on the culture and human development of the island of Melos. This book which is methodical and full of ideas, has proved indispensable not only to the student of Melian archaeology, culture and history, but also to the archaeologist or historian interested in the study of ancient societies. The reviewer of this book, for example, has used this volume extensively in her own field work on the Protopalatial site of Monastiraki in Western Crete.

In the time that passed since this model study first appeared in 1982, it has become the standard work on surveying and understanding the environment and function of ancient sites. No doubt, relevant work that will be carried out in the future will need to examine the points which it raises. This book is a must for any archaeological, historical or anthropological library and will influence research in the years to come.

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SABLOFF, Jeremy A. *The cities of ancient Mexico: reconstructing a lost world.* London: Thames and Hudson, 1989. 224p; 150 pls. ISBN 0-500-05053-8 £12.95

"What were the cities like?" (p. 6). Part I (cc. 1-8) offers a series of reconstructions, eg "It is mid-morning in ... summer ... AD 948 ... Sayil hums with activity ... workmen are finishing ... the great ball court ... The procession passes" (pp. 10-3). Jorvik? The ... vignette ... is useful, but it demands ... justification" (p. 13). So Part II (c. 9) explains why archaeologists study the rise of civilisation; and Part III (cc. 10-2) shows how they do so. Evidently this book is for non-experts who are alert and reasonably affluent: following Part III are a Gazetteer of sites replete with traveller's tips, and a long bibliography. Such laudable daring deserves a tough test. So, 1, is the book presented well? 2, does it give a good account of archaeology? 3, is the argument cogent and the content comprehensive? 4, is the book fair to the ancient Mesoamericans and to ourselves?

1. The text is short but this is a chunky, agreeable book. Although the vignettes' literary contrivances wear thin, the prose is both succinct and relaxed (if, at times, lax). Matching the author's ingenuity, the lay-out is lively and, mostly, coherent. There is a welter of black and white photographs ranging from codices to recent excavations and the crew of Apollo 12 - mostly excellent although some of the 'Special Photography' trendily moody at the cost of clarity. Though dim, the person in Fig. 126 looks pleased to be downside at last. Some of the drawings come out poorly (Fig. 89 is disgraceful).

2. Does synchronic reconstruction express archaeologists' work on "how cultures change" (p. 151)? Not adequately; but within his range of theoretical reference, Sabloff provides a good account of anthropological archaeology - how gratifying to see the nature of the evidence, the methodology and the issues set out for the non-expert (cc. 9-10 et passim).

3. C. 1 introduces the concept and geography of Mesoamerica, prehistory up to the Olmecs, and the theme of urbanism in general. From Bernal Diaz (p. 9) to Joe Public (*passim*), it is the urban amenities that have drawn attention; but, after a promising review, we end up (p. 29) with a lame definition of 'city', neglecting urbanism as a socio-economic pattern. The remainder of Part I proceeds to reconstruct key examples of 'cities' from Formative to Contact. Except for Cerros, they are, indeed, in Mexico, but text and Gazetteer cover the rest of Mesoamerica (p. 19). For details of cosmology, social organisation, economics and technology, the vignettes are highly informative if read with care; but, here and there, compression simplifies too much (e.g., economics, pp. 41-2, 118). Then, by evidence and argument, Part II dispels diffusionist misconceptions (but who takes Von Däniken so seriously?). There follows a summary of ideas that U.S. archaeologists are, or should be using in order to understand the rise of civilisation. Sabloff favours systems approaches (cp. c. 1 et *passim*). This summary compares Mesoamerica with other parts of the world; but 'state' is barely mentioned; and, less specific to the area than the foregoing assessment of diffusionism, the discussion fails to indicate the stimulating variety of theories that has been applied to the field. Part III reviews the cases presented in Part I, explaining, with reference to methodology and further evidence, how the interpretive reconstructions were made: deftly, we are introduced to inference by analogy and the use of historical sources, and shown how to employ codices, epigraphy, art and architecture. Hence we get the sense of detective work, including both discoveries and lacunae. The Gazetteer's selection of fifty sites is quite reasonable, if skimpy with Aztecs. Few will use much of the bilingual bibliography but, from handy paperbacks to doctoral dissertations, here is nearly all that they need.

4. The trickiest part of the undertaking is to convey not only archaeologists' but also native views of 'what it was like' - tricky especially considering this book's implicitly cosy

readership. The problem is sharpest in the vignettes, seven excursions in the footsteps of imaginary figures - an Olmec woman, a ball game hero, a child in Tula, etc ... The book emphasises formal culture (human sacrifice galore; cf. p. 197). Yet, ironically, we hardly penetrate the ritual for its meanings. To achieve this, the necessary condition is adequate grasp of social structure and organisation. Perhaps, by amalgamating the vignettes, we could discover something of a polychronistic 'system'; but, chapter by chapter, we are frustrated by the combined effect of superficial definition (p. 29) and a theoretical framework (pp. 149-51) too general to articulate the character of Mesoamerican civilisation. So despite all the archaeoethnography, we remain mass tourists - "Step into a time-machine and see ... " (p. 10). In such a lean text, perhaps, even were editorial policy conducive, it was not feasible to challenge readers' outlook as well as to explain how archaeologists work; but, ever since Díaz, ancient Mexico has challenged us.

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SERJEANTSON, D. and WALDRON, T.
(eds.) *Diet and crafts in towns: the evidence of animal remains from the Roman to the Post-Medieval periods*. Oxford: British Archaeological Reports, 1989. [6], 223p; figs; tbls. (BAR British series, 199) ISBN 0-86054-598-9 £15.00

This useful volume contains a wide variety of papers which can be loosely considered together in the catch-all title. Despite the diversity, it is a coherent volume, including contributions on

methodology, specific types of material, crafts, and human remains. The editors are to be congratulated on its cohesion.

The introduction by Serjeantson lays out the parameters of several problems encountered in the use of environmental data. She notes with clarity the differences between the approaches to rural and urban material, the potential conflicts between rescue and research methodologies and the resulting problems of comparability between data sets.

The volume takes up many of these challenging problems and provides many thoughts for future work. O'Connor underlines the approaches to looking at an overall assemblage, reminding one of the importation of meat on the hoof, and the corresponding care needed in overall interpretations. As would be expected, the routine sieving undertaken at York has yielded various elements of the faunal assemblage which may be lacking elsewhere; lacking not through initial absence, but through lack of recovery (cf Lincoln). The detailed approach to material recovery by Coy, specifically for bird and fish, underlines these comments. 'Both trowelling and sieving are needed to gain a full picture' (p. 25) Coy states; it is sad that this still needs to be written and is not practised universally.

The two papers on human remains are perhaps a little misplaced in the volume, but their contribution is not in doubt. The paper by Ijzereeg on social differentiation as shown in the skeletal material in 17thC. and 18thC. Amsterdam is fascinating exposition of modern methodology. The paper by Waldron explores some crucial and fascinating elements of human dietary deficiencies and trauma as seen in the skeleton. The apparent misplacing of Fig. 2A on page 64 is an unfortunate error but does not detract from the overall paper!

The group of papers commencing with Maltby on butchering of cattle and debris from boneworking is useful and provides a good discussion of specific techniques used by urban butchers. This leads on to the paper by

MacGregor on bone, antler and horn working in an urban context. This is a particularly useful paper, distinguishing clearly between temporal variations in the use of antler (predominantly 8th-11thC.) and horn (11th - 13thC.).

Serjeantson's contribution on the tanning trade is very useful and explores the evidence for skins in the archaeological record. The paper by Armitage on bones used for building materials is most interesting and provides material for careful re-examination of older excavation reports. The appendix on p. 161 would have been more appropriate immediately after the paper! Levitan presents three case studies to support his argument for selective bone analysis. Whilst this clearly seems to be effective for Exe Bridge and St. Catherine's Priory, his own admission that it was not satisfactory for St Nicholas' Priory may be related to the fact the 'bulk samples were taken for sieving, but this had not been completed at the time of analysis' may go some way to explaining this!

Finally, O'Connor attempts to establish priorities for the study of environmental material. One sympathises with the huge numbers of bones recovered from York and agrees with the approach that it is pointless examining bones from disturbed contexts. However, period bias in study can only be a temporary measure and, although Thatcherite terms such as 'cost effective' clearly must be considered, if they are never to be examined, why bother to collect the material in the first place?

In short, this is an excellent volume, going some way to filling the gap outlined in the introduction. The varied approaches are most stimulating and the volume will be of use to students, non-specialists and specialists alike.

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SHANKS, Michael and TILLEY, Christopher
Reconstructing archaeology; theory and practice. Cambridge: Cambridge University Press, 1987. xvi, 267; illus. (New studies in archaeology). ISBN 0-521-30141-6 £27.50

By their bibliographies shall you know them! After all, this book includes a long discussion of British and Swedish beer cans as 'an investigation of social meaning', and bibliographies are as artefactual and 'embedded in the social and symbolic structures of everyday [academic] life'. In this book, 'a critical encounter rather than an exegesis', many of the stock names of today's archaeological establishment take second place to the emphatic and repeated inclusion of names as resonant as Adorno, Althusser, Barthes, Bourdieu, Foucault (of course), Giddens and Lukacs. Here Sir Mortimer Wheeler and Gordon Childe rub shoulders with Nietzsche, Heidegger and Wittgenstein. The authors of this bold and stimulating book are attempting to get archaeologists to take the broad view and consider how the theory and practice of archaeology relate to contemporary thought on the social world.

Readers should not be misled by the claim (p. 2) that the chapters are 'separate essays, complete in themselves' which can be 'read in any order'. It may be possible to skip the first chapter, but otherwise there is a clear progression from a critique of recent and still current views on the nature of science and the role of archaeology towards a programmatic statement about the 'conceptual basis of a truly social archaeology'. Within that very general progression, however, the structure of the book is weakly articulated; it is only cumulatively and with reflection that the parts fit together and elicit a response in the reader's mind.

An essential starting point is the recognition that archaeology is what archaeologists do, and that what archaeologists do is to engage in a 'practice producing its own objects - texts'. Archaeologists participate in discourse relating the past to their own present, whether to their

fellow-archaeologists, some broader scientific audience or a wider public. At one time archaeologists took a view of themselves as historians or something very similar, telling tales of culture history or revealing the world of pre-history. The flaw of the 'new archaeology' was to see the subject as 'scientific' and to take hold of a philosophy of science which was loaded with logical positivism. 'There is no divide between present and past, subject or object.' Archaeology is 'interpretative practice' and thus like other social sciences. In their engagement in 'active mediation of past and present' archaeologists should concern themselves with the texts of other writers, 'Freud or Foucault, Douglas or Derrida ...', and so we are back once more to the semiotics of the bibliography.

This volume in the series *New studies in archaeology* is a provocative contribution to the discourse (the authors would say the 'dialectic') which has made the archaeology of the 1980s quite distinctively different from that of the 'new archaeology' phase, and much more mature and able to take its place in the world. This reader was frequently irritated by the authors' style, sometimes rhetorical, superficial or combative, at other times clogged with heavy agglutinations of rare (and invented) polysyllables. He was also puzzled by the repeated references to the role of the archaeologist in a *capitalist* society. However, irritants keep one awake, alert and eager to respond, and he suspects that that was part of the authors' tactics.

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SIMPSON, Richard Hope *Mycenaean Greece*. Park Ridge, N.J.: Noyes Press, 1982. x, 246p; 32 pls; 15 figs. ISBN 0-8155-5061-8 \$45.00

The elegant presentation of the evidence for Mycenaean settlement in mainland Greece, the Aegean Islands and part of coastal Anatolia is the result of the work of Hope Simpson and colleagues (O.T.P.K. Dickinson and many others) who have taken to the hills and rough ways to search, often in very uncomfortable conditions, for the physical traces of prehistoric Greece. The search itself is supported by assessment of excavations and finds, both on the spot and in libraries and museums. Throughout Hope Simpson demonstrates devotion to the subject and its systematic development.

Foot-slogging surveys are inevitably extensive, covering much likely ground to find as many sites as possible, and are distinct from intensive Systematic Random Transect Surveys which may ignore likely spots for settlement quickly noted by the trained eye. Such work is never easy, and can never be complete, because modern conditions and modifications of the landscape can just as easily bring new sites to light as to destroy them.

In his introduction Hope Simpson lays out conditions and limitations of survey work. The surveyor must always bear in mind the physical changes in the landscape which have taken place since antiquity, such as weathering or alluvial deposition, the shifting of springs (without which no ancient settlements could survive), changes in soil condition brought about by centuries of agricultural activity. Environmental factors have been emphasised by Bintcliff and others, but Hope Simpson gives several instances of the fallibility of relying too heavily on their conclusions. Once settlements have been found it is important to assess the period, length and size of their occupation (convincing estimates of population have not yet been achieved). Hope Simpson suggests a convenient table for estimating size (p.3), which

could well be used in serious guide books to Greece. His conventions are clear and economical. The chronological table rightly prefers relative to absolute chronology, from the beginning of the Middle Bronze Age to Protogeometric. This elusive subject has recently been explored by P. Warren and V. Hankey, *The chronology of the Aegean Bronze Age* (Bristol Classical Press, 1989). The areas under examination are treated in eleven maps, with effective overlap, moving outwards from Mycenae and the Argolid, the central power house of Mycenaean domination of the mainland and adjacent areas in the Late Bronze Age. It is easy to move from site entries to the maps, and they are as clear as is possible without the introduction of colour. The brief entries contain information about all periods identified on the ground, short description and discussion of features, such as roads and communications, and are, where necessary, illustrated by neat sketch maps. Primary bibliography directs the reader to fuller study. The site index and select bibliography are excellent.

Additions and modifications, the natural result of basic research, will be made to the list of over 700 sites recorded. Hope Simpson accepts the evidence for possible Mycenaean shrines or "cults" at the Asklepieion of Epidaurus (A 30, pp. 27-28) at Marmaria, Delphi (C 52, pp. 77-78), and at the Amyklaion, Sparta (E 5, p. 103), but doubts the existence of one at the temple of Aphaia, Aigina, (A 49, p. 32), where the quantity of figurines is impressive, and evidence for a temenos credible. In her PhD thesis of the Bronze Age Aphaia Sanctuary on Aigina (UCL 1987) Dr. K. Pilafidis-Williams showed that such a shrine was present. The "fortress" of Gla near Orchomenos, Boeotia (C 7, pp. 62-64) described as a fortified palace, has recently been studied by Professor Sp. Iakovidis (*Archaeological Reports* 1983-84, 38). It seems that it was constructed and occupied in the LH IIIB1 and early 2 periods only, and was probably a fortified centre for managing and storing the

agricultural wealth of the Copaic Plain, an area as Hope Simpson points out, successfully drained in Mycenaean times.

This reviewer, many years ago, walked the length of Euboea in search of Bronze Age occupation, and knows well the triumphs, frustrations and adventures of survey on foot and by public transport, among friendly people, sometimes puzzled by foreign students' zeal in collecting rapidly vanishing data about the past. Hope Simpson writes from experience, for he has visited over half the sites listed, and this work merits the close attention of scholars concerned with the landscape of Mycenaean Greece, and the problems of relating modern research to the elusive realities of the past.

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SINCLAIR, T.A. *Eastern Turkey: an architectural and archaeological survey. Vol. I.* London: Pindar Press, 1987. [10], xiii, 454p; 118 pls; illus; 3 maps. ISBN 0-907132-32-4 £135.00 (Vol. 1 only)

This massive tome, weightier than might appear at first glance, really deserves a fuller treatment than can be attempted in this review by someone who made a modest contribution to the data here assembled, but who can claim no grasp of the Christian era and the subsequent Ottoman period, which form the main source of this book. It is assuredly a work of scholarship but also a labour of love. It is perhaps a reflection more on the potential readership than on the author that there may not be as many as one might wish who will have the determination to apply themselves. For this is a book more in the manner of the last century than of our own generation, in which the author - untrammelled by restrictions of space imposed by commercially motivated publishers - speaks at leisure to his readers, both of his

subject matter and of the best method of approaching it. As is openly stated, this is no mere guide book, but "a statement of what there is." Typical of the thoroughness of this book is the inclusion of a section on the pronunciation of names, whether Turkish, Arabic, Armenian, Syriac, Greek, Latin, Kurdish, Persian or Georgian. This alone serves to hint at the cultural complexity and turbulent history of these regions.

The first part of this book comprises chapters, after an introduction, on the buildings (with sections on cities, castles, roads and bridges; on Christian architecture; on Muslim architecture; on decorative arts (carving and sculpture, tiles and painting) and on museums - the next chapter being on the buildings in history, with an annexe on conflicting doctrines as to the nature of Christ; and the final chapter on the buildings and the present. The second part has two regional chapters, on Urartu and Vaspurakan: the Van region; and on Kars and Ararat. Throughout there are bibliographies, which are much more than bare lists of publications: the reader is guided to relevant pages with the occasional warning comment.

The historical sections include a concise account of the Russian military interventions in Eastern Turkey during the First World War, presented in a manner not readily accessible elsewhere; and there are notes on recent, post-World War II, developments. But it is probably the regional chapters which will be of greatest interest to the majority of readers. The relatively familiar monuments described include of course the church of Aghtamar, on the matchless island in Lake Van, nowadays accessible to all visitors to Van, which has become a major centre for tourism: nine pages are devoted to this church - its history, plan and, above all, its sculptures. While the general themes are readily discernible to the visitor, here are included the short Armenian inscriptions accompanying the sculptures. Immediately following comes a description of the extensive ruins of Ahlat, with its medieval tomb-towers (kumbets) and cemetery. Reading this must make anyone who

has seen Ahlat without benefit of prior access to this book full of regret for what was missed when it would have been most welcome, for Ahlat is a site which challenges the ignorance of the average visitor. Next comes a full description of one of the most impressive fortress-citadels of the kingdom of Ararat or Van, commonly known by the name Urtu, as found in the annals of its arch-enemies, the kings of Assyria: this is Çavustepe, overlooking the road which runs south-east from Van to Hosap, with its Ottoman-period castle. Both these are easily accessible to tourists. But the author describes equally thoroughly, as far as he is able, remoter sites, not readily reached without benefit of a good map or local guide, although today the physical business of travel is nothing like as difficult as it was only a generation ago, since every Turkish village now has access from the nearest highway. One such site (p. 263) is Pagan, now named Yesilaliç, with a fine rock-cut inscription of Ishpuini and Menua, of the late ninth century B.C. As the reviewer can testify, this site, not far from the Iranian frontier and east of Van, is reached by a track or dirt road through several villages: the route is described in three lines of small print.

In the second regional chapter in this, the first of three volumes of this magnum opus, the outer walls, city, cathedral and churches of Ani are described with the detail found throughout, and are set in their historical context (pp. 356-378). This chapter, entitled Kars and Ararat, naturally includes also the Ottoman palace of Ishak Pasha at Dogubayazit, uphill south of the road to Iran.

The section (pp. 169-170) on "safety, possessions, health" is typical of the author's concern for his readers, and no doubt reflects some of his own experiences. Perhaps the main question-mark over this work of scholarship is that of the purpose for which it was written, or, as the publishing profession would phrase it, the market. The sheer volume of detail and the rather involved arrangement do not make for quick digestion; but they were clearly not intended to do so. This publication will prove

invaluable to anyone contemplating a serious study of the art and architecture of eastern Anatolia, as well as its complex and often violent history. As a background to a prolonged and conscientious exploration on the ground this is of undoubted value. The reader would, however, be well advised to plan any such pilgrimage to eastern Turkey at least a year ahead, if this book is to yield its treasure. The last-minute traveller might gain little.

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STEAD, I. M. *Celtic art in Britain before the Roman conquest*. London: published for the Trustees of the British Museum by British Museum Publications, 1985. 72p; 93 pls (some col). ISBN 0-7141-2031-6 £4.95

The artistic achievements of our forebears never cease to capture our imagination. Much printers ink has been spilt upon the meaning of work by the great masters. It is not surprising that the earlier art of prehistory has the same fascination. This, in turn, means that there is unlikely to be a shortage of books on the subject. So it is with Celtic art. Among the recent arrivals is this small book by Stead, an acknowledged master of the subject.

The book itself is no tome to advance the frontiers of the subject. It is simply an introduction to Celtic art, defined as 'abstract decoration on functional objects.' There are three main divisions to the book. After a brief introduction Stead deals with techniques of metalwork, the development of patterns, and then he gives examples of decorated artefacts in various walks of life. There is a brief bibliography.

Chronology is a contentious subject in the British Iron Age. Radiocarbon dating patently does not work for this period as Stead knows

only too well from his experience with Lindow Man. He chooses to use 'chronology derived from artefacts—their typology and associations. Typology is borrowed from Europe and associations are too few. This is not criticism, what else could he do? His chapter on metalworking techniques is a good and thorough discussion of the working of bronze and iron; with an introduction to tools, techniques of manufacture and decoration. A number of examples are given. The second chapter introduces the art styles to the reader. The import of the European context and of the work of Jacobsthal is tressed. The styles are then viewed in the context of everyday life: dress and jewellery, hearth and home, weapons and armour, chariots and harness, and finally ritual.

The book is remarkably free from errors although there is an inconsistency between a comment on the Augustan period — 'for the first time in the Iron Age there are undoubted imports from the Continent' (p 23), and the reference to 'an imported Ha C bucket' (p 11). Perhaps Stead could have gone more into the mechanisms he sees as being responsible for Continental ideas becoming incorporated in the British repertoire. However, these are only minor points. The main criticism of the book must relate to the target audience. For whom is the book intended? There is little doubt that it will be a useful addition to any scholarly bookcase, however the style and price suggest it was aimed at a more general market. If this is so then such an audience will probably find the chapter on art styles somewhat heavy going.

The book is well produced and includes 93 high quality illustrations. For these alone it would be worth the price, but Dr Stead's informative text is more than a mere commentary upon pictures. Thanks must be given to the Henry Moore Foundation for their continued support which makes this series of books such good value.

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SUPER, John C. *Food, conquest and colonization in Sixteenth-Century Spanish America*. Albuquerque: University of New Mexico Press, 1988. vii, 133p; 2 maps. ISBN 0-8263-1049-4 (Hbk); 0-8263-1061-3 (pbk). Hbk: \$24.95; pbk: \$11.95

John Super's book is primarily a review and summary of the evidence and problems concerned with the supply and consumption of food by the native and European populations of Spain's American colonies in the sixteenth century. It is brief: only 88pp. of actual text, then detailed notes (in which there is much information), and a bibliography and index.

Limitation to the sixteenth century is arbitrary and not explained, except to say that sixteenth century Spanish America was 'a dynamic and complicated time and place'. Nevertheless this is a book full of ideas and direction to source materials and represents a long period of thoughtful study and archival work.

Super declares that 'Food shapes and is shaped by society and nature.' (Cf. Alan Garcia Perez, referring to Peru: 'Societies are born from food, live on food and build up their awareness of time and space through the food they consume.'). He addresses the inherent problems in assessing how adequate the food supply was, how it did or did not change with the impact of imported foods, how methods of production changed with new foods or were altered for traditional foods, and how the sources can be used to provide answers.

First he reviews the sources, what they do and do not provide and how they often contradict one another. He discusses production and availability, then attempts to assess actual consumption and dietary balance, even hypothetical calorie counts. He points out pitfalls in using the evidence, especially the ever-present question of how faithfully the documents reflect reality.

Detailed chapters (2, 3 and 6) survey land and productivity, comparing North and South America with each other and with Europe; European introductions; and Indian food and drink. Chapter 4 describes the ideal situation, that is, the laws and institutions introduced to regulate productivity and distribution, to reconcile native methods with European and how these changed with circumstances. Super is ever-conscious of potential difference between bureaucratic intention and performance; the sources often conflict.

Chapter 5 discusses 'Countervailing Forces': the impact of European ideas and changes in Indian food systems on the Indian themselves. The drastic decline of Indian population is discussed in relationship to changing systems of labour and tribute demand.

Ending his first chapter Super declares that his discussions 'should be considered as an exploratory essay', and he indeed reaches few conclusions. His essay is primarily an exploration of the sources to get a clearer understanding of the adequacy of food supply, its distribution, and of dietary balance. He suggests that one reason for the rapidity of Spanish conquest and consolidation was the very efficiency of their food production and distribution. Further, that although hunger was never completely eliminated, it seldom turned into famine or starvation. He contrasts the relative abundance of grain in Spanish America to Spain's contemporary prolonged period of grain shortages.

Food politics concentrated on distribution. On one hand decrees from Spain regulated and even prohibited some crops, to protect peninsular farmers. On the other, colonial officials constantly struggled against import monopolies and at the same time tried to meet the shifting demands of local distribution, against local hoarding and profiteering. Super suggests that in the long term this constant regulation brought basic political and social stability. In contrast to other laws, food distribution laws, excepting drink and sometimes meat, did not enforce

separate consumption patterns for Indians and Spaniards. Neither did they attempt to keep the Indian population in control by keeping it weak through inadequate supplies.

Finally, Super discusses briefly the much written about socio-political-economic crisis of the late sixteenth century. He suggests that the crisis was little related to food, for there is little evidence of any long-term shortages or even of *relative* price rises. Indian populations, despite drastic decline through diseases, remained strong precisely because of their adaptability to new foods and to new production and distribution systems.

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TAYLOR, Lord William *The Mycenaeans*.
Revised ed. London: Thames & Hudson,
1983. 180p; 151 illus. (Ancient peoples and
places) ISBN 0-500-02103-1 £12.50

This up-date of the 1964 edition presents the Mycenaean world reconstructed from archaeological information from Aegean lands and the wider area of Mycenaean contacts, aided by the application of scientific processes. As in the original format, a wide margin contains neat line drawings, many of them long familiar, but now the empty space emphasises the reduced size of the type in the text. Rather grey photographs give a dimmed impression of the sunlit brilliance of the Mycenaean world.

The introduction summarises field work carried out by many institutions since the time of Schliemann, without specially mentioning the work of the Greek Archaeological Service and the Greek Archaeological Society at Mycenae following the death in 1957 of Alan Wace. Petrie gets proper credit for classifying a particular foreign pottery found in Egypt as

'Aegean', but the details are incorrect (p. 10). The 'prophetic insight' (Evan's phrase) relates to Middle Minoan sherds Petrie found at El Kahun in 1889-90, and not to Mycenaean pottery (Late Helladic IIIA2) found at El Amarna in 1891-92. By the date Mycenaean pottery was recognised as such (see V. Hankey, "Petrie, Mycenaea and Egypt", *Minerva* 1, no. 3, March 1990, 12-15). Since 1964, new excavations have posed new problems (e.g. the importance of cult, relations with areas outside the main centres). Mycenaean and Cypriot finds in the western Mediterranean (where Taylour made his first contribution to Aegean studies) add fresh dimensions. Research may be limited or expanded by the interested scientist, undermining settled beliefs (e.g. the date and extent of trade in Cypriot copper, or the origin of Mycenaean pottery found abroad).

Chapter. 1 explains ceramically based chronology and its relation to the dating systems of Egypt and the Near East. The synchronisms follow *Cambridge Ancient History*, 3rd edition with recent refinement of Egyptian dates. Chapter. 2 gives a fair description of Linear B. Chapter. 3, on religion, includes Taylour's excavations in the cult centre at Mycenae. Here it is not easy to match details with those of Mylonas and colleagues (compare illustrations 23, 41 with fig. 1, in Sp.Iakovidis, "Destruction horizons at Late Bronze Age Mycenae", *Philia Epe eis Georgion E. Mylonas* (Athens) A', 1986, 233-60). Taylour is wary of seeing more than outward similarities with Minoan cults and beliefs. Chapter. 4 describes funerary practice from Middle Helladic beginnings to the building of the great tholos tombs. It is hard to agree that in the Shaft Graves the parvenu Mycenaean were trying to keep up with the Egyptians (p. 65), or that the gold found in them was payment for military help in expelling the Hyksos (p. 153). Chapter. 5, on citadels, palaces and houses, could comfortably serve as an on-the-spot guide book.

Basic house forms are traced to a Middle Helladic model, but this tradition goes back at least to Early Helladic III (Lerna IV, Olympia Altis). Tiryns deserves closer attention. Recent excavations here suggest that in Late Helladic IIIC Tiryns was more populous and more important than Mycenae (K. Kilian, 'Ausgrabungen in Tiryns 1981. Bericht zu den Grabungen', *Archäologische Anzeiger* 1983, 277-328). Chapter. 6 deals with daily life, the arts and society, seen mainly from the high ground of the Mycenaean upper crust. Aristocratic elegance is described with imagination and insight, and Taylour recognises the Minoan lead in social arts and fashions. Crafts and communications are briefly noted. Taylour accepts the likelihood of trade in slaves, but the mass of people on whose labour all depended are only faintly visible. Agricultural enterprise provided a solid base for Mycenaean commercial success, as is evident from contents of the House of the Oil Merchant at Mycenae, the Linear B archive at Pylos, and in the pottery containers found abroad. Gla, p. 105-6, is now seen as an imposing agricultural establishment rather than a military fortress. Chapter. 7, on war and trade, describes the Mycenaean as successfully aggressive, but does not explore relations with the Minoans in the early part of Late Helladic or how these led to the destruction of the Cretan palaces outside Knossos. Assessment of the eruption of Thera (p. 156) leaves out the inescapable fact that the post-eruption period of Late Minoan IB (= Late Helladic IIA late) was one of brilliant cooperation between Mycenae and its 'dreaded rival'. Throughout, the archaeological account of the originators of the 'Greek Miracle' (p. 14) is reinforced by reference to the Homeric and epic cycles, and echoes of the past preserved in Hellenic history, without discussing their historical validity (see chs. 2 and 8). Some readers will accept this, others will be disturbed by such faith in unprovable relations.

Summing up, although involved students may need further guidance, such as precise references to published scholarship and a fuller bibliography, general readers will enjoy a vivid personal view of a world which Taylour, himself helped to reveal. This year (1990) we mourn the passing of Billy Taylour, who loved Mycenae 'paved with gold', and this reviewer thanks him for his clarification of its monuments and achievements.

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TORRENCE, Robin (ed.) *Time, energy and stone tools*. Cambridge: Cambridge University Press, 1989. viii, 124p; figs. (New directions in archaeology) ISBN 0-521-25350-0 £27.50

Like other 'New directions' books, this volume started life at a Society for American Archaeology meeting (Minneapolis, 1982) and matured a long seven years before eventual fruition. But its conception goes back even further, to those pre-Post-Processual days when *lex Binfordiensis* ruled and positivist, evolutionist, scientist and empiricist archaeology was *de rigueur*. Although the editor bemoans a lack of general theory for stone tools, this book is mostly about method. Its twin support structures are middle-range theory and optimisation theory; its biggest problem is how to create grand theory out of something so embedded in grander behaviour as lithics. It is no mean achievement that, despite the 1970s theoretical baggage, the book still has something interesting to say about lithics.

The aim of the volume is made explicit early on (Torrence, p. 2): "to refocus the interest of archaeologists and anthropologists on the study of tool-using by illustrating that theory for explaining human strategies of tool manufacture

and use can and is being developed". In true capitalist style, the editor and most other contributors use cost-benefit models, whether the currency is time, quality of raw materials or energy. Most of the time, the capitalist noises rumble away in the background but there are occasions, such as Jeske's (p. 34) definition of the 'economy' as 'the management of resources' when this reductionist perspective distorts to the point of jeopardising the enterprise.

The central problem of optimisation theory is that optimisation is itself indefinable; it is impossible yet to predict either the optimal toolkit or the optimal tool (cf. Lurie, p. 47). Most contributors' "solution" is to define a problem for lithics to solve and then assume a range of fits between task and its performance. Hayden parts company with the others in his attack on the idea of a "finished" tool; instead, he envisages tools made with possible tasks in view and future hafting and/or re-sharpening in mind. In this sense, there is a link between Hayden's ideas and the post-processualists who often speak of material culture changing its meaning in differing contexts but the class of '82 do not make this connection.

In her haste to make lithics "theoretical", Torrence attacks microwear analysis as too detailed and specific to contribute to general theory. It is thus curious to find that several contributors (Morrow & Jeffries, Lurie, etc.) appeal to functional analysis to help them define the 'problem' to which their lithics are a solution. The limitations of lithics for carrying social information are clearly defined by Gero, who makes a valuable distinction between subtractive (stone, bone, antler) and additive (pots, textiles, metals) technologies, the latter being able to carry a far higher information load.

Another general issue insufficiently explored is the question of how critical it is to make lithic tools efficiently. At the Edinburgh Mesolithic conference, Anders Fischer showed slides of his production of several hundred bifaces in an afternoon; presumably really good indigenous knappers would be able to exceed Fischer's

productivity, so the difference between lithic production rates discussed in this volume may well be marginal to the quality of life in the Palaeolithic and Mesolithic.

Despite continuing doubts about how contributors could resolve these general issues, this reviewer found that some of the case studies contained interesting and thought-provoking results. Hayden takes *la longue durée* to extremes in examining tool production over the last 2 million years; unsurprisingly, his conclusion is very general - changes in artifact production relate to strategies which rely increasingly on raw material conservation, despite higher costs. Morrow & Jeffries investigate whether lithic procurement is embedded in local subsistence strategies in the Illinois Archaic. The assumption that procurement is not embedded if non-local lithics are used differently from lower-quality local rocks is flawed by the possibility that higher-status people may use exotic flint for the same tasks as lower-status folk use local stone.

Jeske wins the gobblydegook award for the way he disguise his leap from global theory to the data base of a single Woodland site. The falsity of his proposed dichotomy between 'economic' and 'non-economic' activities is emphasized by his 'unexpected' result that the proportion of low-quality local cherts is identical in both middens and ceremonial mounds. The cycles of production, distribution and consumption are more closely entwined than Jeske would admit, given his micro-economies perspective on early prehistory.

Robin Torrence makes a good case for explaining the occurrence of lithic 'Dark Ages', as in the Neolithic and Bronze Age of Britain. The explanation is rooted in Bleed's distinction between 'maintainable' and 'reliable' technologies - the former easily repaired and always ready for use, the latter not expected to break down during use but made to a higher specification. Lithic Dark Ages occur when the need to maintain a reliable set of subsistence tools disappears, as when mixed farming is adopted; the result is amorphous lithic toolkits.

The implication behind Torrence's idea that Neolithic ground/polished stone tools are used in prestige contexts is that certain Mesolithic lithics were also used in these contexts, although this interesting notion is nowhere explored.

In a wide-ranging and innovative contribution, Myers relates the shift to geometric microliths in the mid-Mesolithic of Britain to a desire for both more maintainable and more reliable hunting technologies, itself a response to less reliable hunting patterns in increasingly deciduous forest environments. It is curious that the reverse shift (from geometric to non-geometric microliths) occurs contemporaneously in S.W. Germany, where Jochim argues for an increase in logistical mobility and a decline in hunting risk in the Late Mesolithic. Any archaeological hypothesis that can explain two apparently contradictory, but contemporary, artifact changes in one single general model must deserve serious consideration.

Finally, Gero provides a useful theoretical treatment of the relationship between lithics and the transfer of social information. She posits a sequence of social control which passes from initial scarcity of raw material, through increasing energy input into artifact differentiation, to restriction on the context of production. Here, Gero relies on Timothy Earle's distinction between two kinds of specialist: the independent specialist, working in public for payment of goods by an unspecified market, and the attached specialist, acting as a patron for a local elite and paid for by endowments or exchanges. Gero attributes the decline in lithic use at the Peruvian site of Huaricoto to the need for transmission of social information more complex than lithics could bear - a conclusion comparable to that of Torrence for the British Neolithic.

The struggle to de-marginalise lithics in anthropological theory is certain to be hard and long, maybe in the end unsuccessful. Torrence and her cohorts have made an admirable attempt to instate the lithic case, perhaps by the only

method that is possible. Given the limitations to the quantity and quality of information that lithics can carry, the capitalist-based, input-output approach to lithic theory is perhaps inevitable. This is unfortunate, for the very processualist theory used to free lithic studies from marginalisation looks in severe danger of being marginalised itself in the near future.

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UNGER-HAMILTON, Romana. *Method in microwear analysis: prehistoric sickles and other stone tools from Arjoune, Syria*. Oxford: British Archaeological reports, 1988. 331p; 10 tbs; 29 pls; 45 figs. (BAR International series, 435) ISBN 0-86054-561x £20.00

The main achievement of this book is the presentation of a large corpus of experimental data that covers a wide variety of tool types, worked materials and microwear features. Using this as a basis, theories of use-wear formation (especially pertaining to polish) are created and used to account for the traces found on archaeological tools from Arjoune, Syria. Good coverage is given to the principle of experimentation, and its importance to this particular branch of lithic analysis is made obvious. Methodologically, Unger-Hamilton adopts an integrated approach, advocating the use of both low and high power microscopy.

The slightly disappointing aspect of the work (which the author herself admits) is that it is primarily concerned with theoretical and methodological aspects of the technique, and fails to then show how functional analysis can really perform in the archaeological arena. For instance, it proved impossible to use the functional interpretations to define activity areas

within the site, mainly due to sampling and post-depositional restrictions. Also the book suffers from a segmented structure, somehow managing to fit 39 chapters into 200 pages, which makes for a somewhat staccato read. As a result, certain topics suffer from a lack of in-depth analysis and discussion.

However, the book makes an invaluable contribution to the search for theoretical and methodological equanimity within the discipline. Such aspects of the technique still tend to dominate the literature, and these issues should quite rightly be approached first of all. Unger-Hamilton's work is one more step towards the solution of these problems and the reviewer for one has found the wealth of experimental data contained within the book an invaluable source of reference for his own research.

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VERGO, Peter (ed.) *The new museology*. London: Reaktion, 1989. [224]p; illus. ISBN 0-948 462-04-3 (Hbk); 0-948462-03-5 (pbk); Hbk: £23.00; pbk: £8.95

One of the immediate values of this book is that it is timely. Whether or not you espouse (or reject) Vergo's main thesis, that there is new thinking in museums and that it is good, you have to admit that the book neatly encapsulates the seemingly new and current polarised debate both between museums and heritage, and within museums.

Such is its timeliness and value, that it was incorporated as a new textbook on the MA Museum Studies course at the Institute, immediately upon publication. An added feature of note is its relative inexpensiveness, compared to other recent texts in the field. This is one that students can afford to buy.

The book, however, also goes a long way towards elucidating the *angst*, deeply felt in both protagonists' camps. Peter Vergo sets out the basis for the book precisely as a contribution to that debate. He makes no claim, but your reviewer will, that it goes much further than that, and offers significant insights, precisely because it juxtaposes what might be considered at first glance unrelated questions.

They are not unrelated at all, and the book thus provides a firm basis, alongside other recent works, Rob. Lumley's *The museum time-machine* being the one that immediately springs to mind, upon which the whole concept of "museology" can begin, at last, to grow into an acceptable area of academic study, and without, it has to be said, leaving its roots as a "professional" craft so far behind, as to be of no more than passing acquaintance with the field, as some social studies areas clearly have.

Charles Saumarez Smith, in *Museums, Artefacts and Meanings*, discusses the whole question of "interpretation", and that most recent effect of museum professionalisation. Just what is "interpretation" - fabricated reality, the exposition of new knowledge, a hybrid of these and other objectives, or something altogether different?

Then Ludmilla Jordanova, in *Objects of knowledge: a historical perspective*, gets straight to the heart of the "museum dilemma", when she states that the link between viewing items in a museum and acquiring knowledge is "the assumed function of museums" (p. 22).

From my own reading of admittedly more museological literature, and therefore much narrower in context, it is in fact only one of the assumed functions, at least according to museum workers who write their own journals: educational institutions, aesthetic benchmarks, culture warehouses (even manufacturers), places of civic pride, research centres, "non-verbal reality models", have all been stated as the *raison d'être* for all or some museums.

Some writers have plumped for plurality of purpose, based on the "community", or in modern management-speak the "client-group", market segment or customer (same thing, different attitudes and learning bases).

Many more have in fact argued vehemently for one single role, at different positions on the spectrum, but generally contributing to the polarisation of the debate, rather than offering any new insight. Obvious exceptions would be Cameron [Cameron, Duncan F (1971) : "The Museum, A Temple or Forum?" *Curator*, XIV (1) (1971) : 7 et seq], and Ettema [Ettema, M.J. (1987) : "History Museums and the Culture of Materialism", 62-85 in Blatti, J. (1987) : *Past meets present: essays about historic interpretation and public audiences*, Washington: Smithsonian Institution Press].

Vergo's own chapter, "The reticent object", Sorensen's "Theme parks and time machines", Greehalgh's "Education, entertainment and politics: lessons from the great exhibitions", are three which place role centrally to our understanding of museums, even though the authors approach from different angles.

Two more chapters which offer substantial new thinking to the field are Wright's "The quality of visitors' experiences in art museums", and Merriman's "Museum visiting as a cultural phenomenon".

Aside from the operational assumptions which have driven museum professionals for the last 150 years or so, with shifting emphases every so often, one terrific assumption regrettably still pervades museums: that visitors, by far the biggest single group of users, though not the total, exclusive body of museum users, actually visit museums for the reasons that professionals choose to work in them! That is not so trite as it may seem, since research in France, the same U.K., Canada and the USA has shown that these motivations form part of the answer to the question "why do people visit museums?", but not the whole answer.

The final chapter, Palmer's "Museums and cultural property", is an excellent introduction to that field, left rather fallow elsewhere in recent publishing, with the exception of McBryde, I. (1985) : *Who Owns the Past?*, Melbourne: OUP.

What does not come out of this work, nor in fairness was it intended, is that very little primary research (other than visitor surveys, and those mostly flawed) exists, and certainly there is next to no quantifiable data. *Museums UK: The Findings of the Museums Database Project*, [1987, Prince, D.E. and Higgins-McLoughlin (eds), London : Museums Association], and the work of Alan Chadwick *The Role of the Museum and Art Gallery in Community Education* (1980), Nottingham: the University of Nottingham Department of Adult Education] - what one senior museum professional has publicly called "the first real PhD in Museum Studies" are worthy and welcome exceptions.

Therefore what published material that does exist, largely critiques from outside the "profession", and a less well-known but useful corpus over many decades for prime movers within it, in reality, only explores the assumptions of social functions for museums and related phenomena. Neither facet of the literature analyses, observes, measures, and draws conclusions from that evidence.

However, Merriman's work in this new volume is both an exception and the best yet. It is nationally based, and though he is "of the profession" he is guilty of an objectivity in his approach which may brand him as standing to one side of the museum debate, so capably collected and elucidated in this new text.

As his research shows, and indeed, as this whole text reaffirms, what is desperately needed is both quantifiable data, objectively measured results of what museums do, why people visit, what they experience, and comparative results across the whole of the heritage sector. The second, and equal, need is for multidisciplinary research so that even this "New Museology"

does not become self-replicating and sterile, as some people believe the old museology has become.

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WILHELM, Gernot. [*Grundzüge der Geschichte und Kulture der Hurriter. English*] *The Hurrians*; translated by Jennifer Barnes, with a chapter by Diana L. Stein. Warminster; Aris & Phillips, 1989. vii 132p; 31 figs; map. (Ancient Near East Series) ISBN: 0-85668-489-9 (hbk); 0-85668-442-2 (pbk) Hbk: £16.00; pbk: £8.75

This translation by Jennifer Barnes from the original German text is a welcome addition to the relatively small fund of works on the topic. It is to be considered, possibly, more as an introduction to the topic, suitable for students and newcomers; or to act as an *aide memoire* for the more cognicent researcher. With a relatively complete bibliography which will back up and expand the information within its pages and an additional chapter by Diana Stein on Hurrian architecture, it is likely to find a place on many Near Eastern shelves, although at £39.50 (1990 revised price) it is perhaps too expensive for the student market. Neither do the bibliographies add the *Studies on the civilizations and culture of Nuzi and the Hurrians* dedicated to Ernest Lacheman, to which both Wilhelm and Stein have contributed. Thus it is not without its faults.

The most obvious fault is that of style. The work has a tendency, particularly in the introduction and opening chapters, to be laboured and turgid, partly because of the number of references added to the text, partly because of the difficulties of translation. It is worth persevering since after the second chapter these

faults are minimized and the volume of information given is advantageous. The map also is incomplete, omitting many of the sites named in the text so that those unfamiliar with the subject will find it frustrating. Additionally, the chronology might be questioned by some readers, although Wilhelm states in his preface that 'the hitherto conventional dates ... have been somewhat shortened here ...' and excuses this by pointing out 'the chronology of the earlier periods of ancient history is still not absolutely established'.

These problems apart, the work is a serious attempt to present an overview of the Hurrians in their entirety and place them into the context of Near Eastern history. Wilhelm points out in his introduction that 'the study of the language, history and culture of the Hurrians has not really developed into an independent branch of Oriental studies ...' and this volume might help to alleviate this problem, although it is to be regretted that it concentrated so heavily on Assyrian texts as its source of information.

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